529 0

File: 17G
P.W.

NAVAL AIR STATION
FORT WORTH JRB
CARSWELL FIELD
TEXAS

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 529

File: P.W. 29C

529

Carswell/Plant 4
Restoration Advisory Board Meeting

DRAFT
Summary Minutes of May 11, 2000
Regular Quarterly Meeting

A regular meeting of the Carswell/Plant 4 Restoration Advisory Board (RAB) was held May 11, 2000, at the Carswell Lanes Bowling Center Meeting Room, Building 1815, on the corner of Military Parkway and Hulk Road at Naval Air Station (NAS) Fort Worth Joint Reserve Base (JRB). The RAB meeting began at 6:00 p.m.

Agenda

Welcome/Introductions/Minutes
Fish Tissue/Consumption Advisory (Dr. J. Bruce Moring, Mike Ordner)
Westworth Redevelopment Authority (Leland Clemons)
    Program Update
Air Force Plant 4 (George Walters)
    Project Update
Carswell On-Base (Mike Dodyk)
    Project Update
Carswell Off-Base (Rafael Vazquez)
    Program Update
    Property Transfer Update
Next Meeting Agenda
Open Discussion/Questions

Welcome and Introduction of Attendees

Community Co-Chair J'Nell Pate called the meeting to order and introductions were made. Ms. Pate asked that any corrections and additions be presented regarding the February RAB meeting minutes. Hearing none, the minutes from the previous meeting were approved.

Comments to the draft meeting minutes for this meeting (May 11, 2000) should be sent to:

Ms. Valerie Eisenstein
HydroGeoLogic, Inc.
1155 Herndon Parkway, Suite 900
Herndon, Virginia 20170
Phone: (703) 736-4513
Fax: (703) 471-4180
e-mail: vke@hgl.com

Fish Tissue/Consumption Advisory

Ms. Pate introduced Dr. J. Bruce Moring of the United States Geological Survey (USGS) who provided a summary of results collected from the fish tissue-sampling project conducted at Lake Worth (Attachments 1 and 2).

He indicated that during the review of the chemical data obtained for the human health risk assessment of Lake Worth, the USGS and Texas Department of Health (TDH) worked closely together. Upon review of this data, on April 19, 2000, the TDH issued a fish consumption advisory for Lake Worth.

Dr. Moring reviewed information related to the groundwater contamination of the surficial aquifer at Air Force Plant 4 (AFP 4) and the adjacent Naval Air Station, Joint Reserve Base (JRB), Carswell Field in Fort Worth, Texas. He mentioned that in July 1998, the Agency for Toxic Substances and Disease Registry (ATSDR), in conjunction with the TDH, published a "Public Health Assessment" for AFP 4 and concluded that exposure to contaminants through the aquatic food chain was an indeterminate human health hazard. Based upon this public human health assessment, the TDH and ATSDR recommended that fish be collected from the reservoir and analyzed for the contaminants of concern. Dr. Moring indicated that there were some initial fish collections of non-edible and smaller fish species, which were indicative of hydrophobic type contaminants, however those fish were not commonly caught in the reservoir. Based on recommendations from ATSDR and the TDH, the USGS pursued a full-fledged fish tissue study on the commonly caught fish in Lake Worth (i.e., freshwater drum, largemouth bass, channel catfish, common carp, white crappie, and smallmouth buffalo). Ten fillets were collected from each of the bass, catfish, carp, and crappie species and five fillets from the smallmouth buffalo species.

Dr. Moring indicated that the risk assessment was based on fish tissue collected from a composite of fish caught in Lake Worth. Fish were collected in 10 areas or inlets adjacent to the facility. He noted that this consisted of at least 50% of the ten or five of each of the species and the remaining 50% were collected from the rest of the reservoir.

Dr. Moring mentioned that the USGS analyzed each of the fillets for several types of hydrophobic metals and organics. He indicated that the selected hydrophobic metals and organics do not dissolve in water very well, and tend to settle to the bottom of bodies of water, mixing with the sediments. Dr. Moring indicated that bottom-dwelling fish species, such as common carp and channel catfish, tend to ingest these compounds and show higher concentrations of these compounds in their tissues. He then reviewed each analysis performed on the 55 fish fillets.

- Metals: The USGS analyzed for the industrial metals which are contaminants of concern in fish tissues. For example: arsenic, cadmium, copper, lead, mercury, selenium, and zinc.

- Organics: The USGS focused on organochlorine pesticides (i.e., DDT and chlordane, which are commonly used pesticides in termite treatment) and polychlorinated biphenyls (PCB). Many of these compounds of interest are no longer manufactured and/or user restrictions have been placed on them because they are legacy pollutants. Legacy pollutants are compounds that remain in the

environment and do not dissolve in water. The USGS-Austin office verified the degradation process of organochlorine pesticides by coring various reservoirs around the United States and parts of Canada where these compounds have been used. In the coring process, a plug of sediment is removed from the bottom of the reservoir, dated, and then analyzed for metals and organics. The core provides a history of the water trends of each lake, from when the lake was impounded until present day, particularly for these types of organics. Results from coring indicated that many of the organochlorine pesticides and particularly PCBs have diminishing trends from the bottom to the top of the core. There are diminishing trends and diminishing sources; however, there are also persistent types of compounds that have been around and will remain in our environment for some time.

- Polycyclic aromatic hydrocarbons (PAHs): PAHs are ubiquitous in the environment and are found in everything from cigarettes to run-off from roadways due to fossil fuel combustion. PAHs break down and, therefore, are not usually found in fish tissues, unlike the organochlorine pesticides, PCBs, and some hydrophobic metals. Dr. Moring indicated that there were no significant detections of PAHs in the fish of Lake Worth.

Dr. Moring of the USGS then posed some questions to address certain concerns:

Q. Why are we talking about hydrophobic contaminants?
A. Hydrophobic contaminants are <u>not</u> water-soluble. PCBs and organochlorine pesticides are in the same chemical grouping and are hydrophobic compounds. Many of the metals, particularly selenium, mercury, and arsenic, do not dissolve in water. If a sample of lake water were taken, a filter would have to be used to detect even the smallest quantities of these metals.

Q. How long will these contaminants be around in the environment?
A. PCBs and organochlorine pesticides will be an issue for some time, since many of them are legacy pollutants and are still present in our environment, despite their ban in the United States in the 1970s. Most of the health advisories issued by the TDH are for legacy pollutants and contribute to more of the risk advisories than the new generation pesticides.

Q. What can be done to minimize the effects of these contaminants?
A. As an example, Mountain Creek Lake in South Dallas has a similar problem with PCBs; however Mountain Creek Lake was issued a possession ban by the TDH in 1995 or 1996. Through sediment core dating, PCBs were found to be most concentrated in the mid-to late 1970s/early 1980s. Since PCBs have been banned in the United States, and the concentration decreases near the top of the core, the best approach may be to let the reservoir silt in from streams and cap the sediment, rather than dredging the reservoir. Dr. Moring indicated that no decisions have been made regarding this issue.

Dr. Moring provided a briefing on the effect of PCBs in regards to the food chain and how hydrophobic compounds can biomagnify from the bottom to the top of the food chain. He indicated that biomagnification is the process of concern since the concentration increases as you move up the food chain, which means that concentrations

may increase several folds once people or wildlife consume the fish of Lake Worth. Dr. Moring presented a bar graph that displayed the detections of 15 major and trace metals in the 55 edible fish tissues sampled from Lake Worth. He further indicated that many of the detected elements are naturally occurring in the environment or were detected at trace concentrations in the fish fillets, and therefore are of no concern. However he added that mercury tends to biomagnify very readily and is not frequently found in sediment but is found in fish tissue.

A community member inquired about the units of the bar graph. Dr. Moring indicated that the information presented represents the number of detections in all 55 fish tissues sampled and the units are in micrograms per gram, which correlates to parts per billion. For example, zinc was detected in all 55 fish fillets, with the highest average mean concentration of 23 micrograms per gram, and some of the industrial metals, like nickel and lead were only detected in a few fish tissues.

Dr. Moring discussed the detection of organochlorines found, indicating that not one specific compound was detected in any of the 55 fish sampled; however 12 organochlorine compounds were detected, with PCBs detected most frequently. He presented the mean concentration of selected organochlorines in edible fish tissues in micrograms per kilogram.

Dr. Moring explained that PCBs are composed of various mixtures of chlorinated compounds called Aroclors. There are three mixtures of Aroclors, (i.e., Aroclor 1248, Aroclor 1254, and Aroclor 1260) and as you move from Aroclor 1248 to Aroclor 1260, the more chlorinated and hydrophobic the compound becomes. In addition to PCBs, he mentioned that there were several chemical components of technical chlordane detected in the fish fillets, including the isomers cis/trans-nonachlor, cis/trans-chlordane, and oxychlordane. Dr. Moring noted that the degradation of DDT to p,p'-DDE was present in more than half of the fillets and that this has been an increasing trend for DDT due to weathering of the environment. Both chlordane and DDE are legacy pollutants and are commonly found in fish tissues, despite their ban in the United States in the early 1970s.

Dr. Moring turned the presentation over to Mike Ordner of the Texas Department of Health (TDH) to discuss the details regarding the TDH's decision to post a fish consumption advisory at Lake Worth.

Mr. Ordner indicated that the TDH, specifically the Seafood Safety Division, is the agency that issues fish consumption advisories or closures for any type of public water body within the state. He mentioned that the USGS collected the samples, performed data analyses, and then presented that data to the TDH to evaluate as part of a human health risk assessment. Mr. Ordner explained that the TDH does not have action levels for specific contaminants, thus the data was looked at as a whole, based on the contaminants detected in the fish. The TDH performed the human health risk assessment such that if certain compounds caused a risk, then all compounds were of concern at that level. Mr. Ordner mentioned that he had literature with him discussing how a human health risk assessment is performed.

Mr. Ordner of the TDH presented tables based upon the health consultation that the TDH put together and indicated that no metals were found to pose a significant risk to the public health, so the focus was on the organic compounds. He indicated that the major

contaminants of Lake Worth were organic compounds, p,p'-DDE and PCBs. Of the PCBs, two of the three Aroclor mixtures were detected, Aroclor 1254 and Aroclor 1260. When these two mixtures are added together they represent a total PCB concentration. Mr. Ordner indicated that p,p'-DDE was detected in 26 of the 55 fish and Aroclors 1254 and 1260 had detections of 34 and 28, respectively.

Mr. Ordner noted that the TDH assesses both the cancerous and noncancerous risk in their human health risk assessments. He first discussed the cancerous risk data, indicating that the major organic compounds of concern were PCBs, chlordane, DDE, and hexachlorobenzene. Mr. Ordner further indicated that based upon the data, approximately 8 out of 100,000 people would have an increased risk of cancer, or one out of 12,500 people. He indicated that from a cancerous risk viewpoint, chlordane, DDE, and hexachlorobenzene would not pose a significant human health risk.

Mr. Ordner indicated that PCBs were the compound of concern at Lake Worth since 8.5 out of 100,000 people would have an increased risk due to PCBs, in comparison to 8 out of 100,000 people effected by chlordane, DDE, and hexachlorobenzene together. He noted that the TDH then back calculates using this data, to obtain the number of meals a person can consume in a week. The TDH uses a one and 10,000 exposure risk as the baseline and will post an advisory for a body of water when a risk of cancer is shown for more than one out of 10,000 people. The TDH uses 70 kgs, which is a 153 lb. person as its guideline. Mr. Ordner explained that a 153 lb. person could consume 1.16 meals per week without showing a 1 and 10,000 increased risk of cancer. He noted that these results would not trigger an advisory from the TDH because it didn't exceed the baseline numbers used by the TDH. Therefore looking at just the cancer risk caused by these compounds was not enough to have a fish consumption advisory issued for the fish of Lake Worth.

A community member asked if the TDH knew how many people have been exposed in the past 30 years. Mr. Ordner replied that he did not have the data to answer that question. A community member questioned what if 50,000 or 100,000 people have been exposed and it is still not over the 1 and 10,000 criterion. Mr. Ordner replied that this risk assessment is based on a 30-year time frame. A community member asked if it was known how many people have come to fish or have lived on Lake Worth. Mr. Ordner indicated that he did not have data for the past 30 years.

A community member asked if people could have been exposed to PCBs from industrial companies. Mr. Ordner indicated that PCBs are a global problem and can originate from dumping or burning a transformer containing PCBs, which are then released into the atmosphere and cycle back down into our bodies of water. He further noted that he did not want to discuss all of the possible sources, since that is above and beyond what the TDH has authority over.

A community member asked what type of risk is associated with a person who has fished on Lake Worth for 5-30 years and has been eating 50 lbs. of fish a year. Mr. Ordner indicated that the TDH did not calculate a risk for those numbers but it is possible to do. A community member inquired why the TDH did not have a model representing this type of information. Mr. Ordner indicated that from a regulatory standpoint, the TDH has to make assumptions to take regulatory action based on how much you weigh, how much fish you eat and the concentration of the contaminant in the fish. A community member

requested a practical answer regarding the risk in concentration over 10 years. Mr. Ordner indicated that he did not have those numbers, but they can be generated. He mentioned that he would refer anyone with additional questions to the TDH toxicologist for further assistance.

A community member asked if one meal consisted of an 8-ounce fillet. Mr. Ordner replied that one meal for adults is 8 ounces and 4 ounces for children.

A community member questioned whether the data was a composite of all the different fish in the lake, presenting the average risk exposure. Mr. Ordner replied that it is a composite of the fish in the lake.

A community member questioned how this study was conducted using an array of fish from Lake Worth, as a composite for the actual risk exposure conditions. Mr. Ordner indicated that the TDH took the average concentration (218) from all fish fillets, including non-detects and high detections.

A community member asked if a high level of carp could skew the average up and if you ate only crappie, would the risk exposure be different. Mr. Ordner indicated that this was correct.

A community member mentioned that most of the people that fish out of Lake Worth eat bass, crappie, and catfish. There are very few carp eaters. Mr. Ordner indicated that the TDH found various levels of PCBs in several different species and some where there were no detections, so from a regulatory standpoint, this is how the TDH handled the advisory. He added that if each species were looked at individually, the risk exposure to PCBs would change.

A community member asked if there were any detections in the crappies. Dr. Moring indicated that the crappies had higher detections.

Mr. Ordner indicated that from a regulatory standpoint, the TDH could not assume that the public is going to eat one fish out of the lake. For example, the TDH regulates the consumption of oysters and the levels of contaminants are very low in oysters because people eat them raw; however, if you cook the oysters, the exposure limit would be different. The TDH can not assume everybody in the world is going to cook oysters, because so many people eat them raw and we also can not say that everybody who fishes on Lake Worth is going to eat crappie. Mr. Ordner indicated that the TDH issued a fish consumption advisory at Lake Worth, which is advice from the Commissioner of Health.

A community member asked about the risk exposure in bass. Dr. Moring indicated that bass had higher PCB concentrations, which is understandable for a top predator that is higher up on the food chain.

A community member requested a simplified expression regarding the crappie and bass data and the risk involved. Mr. Ordner indicated that one of the problems is that there were 55 fish collected, and the TDH thought 55 fish was a large enough sample selection. Although, when you subset the data into subspecies, your confidence level goes down and the risk levels increase.

Mr. Ordner began discussing the results for noncancerous risk exposures. He noted that the TDH calculates a hazard ratio where anything above a one indicates that there is some type of concern. Mr. Ordner pointed out that this does not mean conditions are bad enough to issue an advisory, but that the data will need to be looked at closer. Like the cancerous risk exposure limits, the TDH also considers a 150 lb. person as their reference weight; although the individual may consume two meals per week. He noted that the TDH would make an assumption for an advisory if a person can consume less than one meal per month.

Mr. Ordner summarized his presentation indicating that the TDH posted a fish consumption advisory for Lake Worth based on both cancerous and noncancerous exposure limits. The TDH considered both even though it was determined that the main risks were due to the noncancerous effects. The noncancerous effects had a hazard ratio of 4.7 which translates to a 153-lb. person could only eat 0.2 (8-ounce) meals per week, before showing an increased risk.

Mr. Ordner indicated that the main effects of PCBs on the liver caused the TDH to be concerned about the noncancerous risks. He added that there are copies of a publication by ATSDR that discusses the details of what PCBs are, how they get into the environment, how you are exposed, and how PCBs can leave your body. If there are additional questions he indicated that he will provide the phone number for the TDH toxicologist, Lisa Williams, and she can answer all questions.

A community member questioned whether there is a noncancerous risk effect for eating fish out of Lake Worth, does that mean there are no cancerous effects. Mr. Ordner indicated that was not correct and noted that there is still a cancer effect even though it did not get below the TDH's 1 and 10,000 baseline limit. The risk exposure was 1 in 12,500, which is closer to 1 in 10,000 than 1 in 100,000, so an advisory was issued.

A community member commented that the ACGIH is changing the maximum/minimum concentrations every 4 to 5 years. Mr. Ordner indicated that there is data from the National Institute of Occupational Safety and Health (NIOSH) that was brought to his attention, but the TDH uses information from ASTDR or the Environmental Protection Agency (EPA). He noted that NIOSH deals more with industrial exposures, while ASTDR and the EPA deal more with consumption type exposures.

A community member asked about the cancer risks found in Mountain Creek Lake. Mr. Ordner indicated that he did not bring that information to this meeting. Dr. Moring mentioned that he would have to review the data but the average concentrations for carp, as they did for Lake Worth, weighed heavily to the average of 218. Dr. Moring noted that carp accounted for most of the concentration, followed by channel catfish and on down the line.

A community member questioned the standards set for the TDH compared to NIOSH standards and added that it does not matter how you're exposed to PCBs, whether it's from fish or industry, you still have the same hazards associated with each. Mr. Ordner indicated that there is a difference between exposing your skin to PCBs or ingesting them. Dr. Moring agreed that there is a difference between the path of exposure to PCBs.

A community member asked Dr. Moring if he recalled if the average concentration of Mountain Creek Lake was an order of magnitude higher than Lake Worth. Dr. Moring replied that he did not recall the maximum distribution of the data.

A community member asked if the levels at Mountain Creek Lake were significantly higher than the levels seen at Lake Worth. Dr. Moring indicated that the levels were not significantly higher at Mountain Creek Lake. Mr. Ordner noted that the difference between the possession ban at Mountain Creek Lake and the consumption advisory at Lake Worth may be due to changes in the toxicology or science. In addition, there was a different Commissioner of Health when the possession ban was issued at Mountain Creek Lake. The Commissioner of Health issues the ban or closure, and the TDH just makes the recommendations.

Mr. Ordner of the TDH indicated that in a study of mosquitofish, there was an increased cancer risk from consuming fish (1 out of 11,733) analyzed for just PCBs. He noted that when DDE is added, the new ratio is 1 out of 12,500. Most of the risk is due to the PCBs and a very slight risk from the other organics. A community member questioned if that was eating fish over a lifetime. Mr. Order indicated that the TDH used 30 years as the life span.

Mr. Ordner mentioned that there were low levels of DDE, chlordane, and hexachlorobenzene found in some of the fish tissues, although the cumulative effects did not add to the health effects. The main concern was the PCBs. Twenty-two metals were analyzed but none were at concentrations that posed any problems to human health.

A community member asked if there was any information regarding where the concentration was greater in the fish liver or muscle tissue. Dr. Moring of the USGS indicated that only fish fillets were examined. Mr. Ordner added that the TDH only looks at the edible tissues.

Mr. Ordner mentioned that when the TDH does a study and risk assessment/risk consultation, there are three things the TDH can do: I) No action taken since there is no risk involved; II) Issue a fish consumption advisory; and III) Issue a fish closure/fish ban, allowing only the catch and release of the fish, and no consumption allowed. Lake Worth fell under Category II. Category II fish consumption advisories can be at different levels, based on two meals per month, one meal per month, and if it is less than one meal per month, where Lake Worth registered, the TDH issues a no consumption advisory. This is strictly advice from the Commissioner of Health and is not enforced by law.

A community member questioned whether additional tissue testing would be necessary in the future or if this advisory would be permanent. Mr. Ordner of the TDH replied that additional testing would need to be performed, especially since PCBs are a legacy pollutant. He noted that if the toxicology of the lake did change, the TDH would request additional studies to have current data and full scans would be run to look at all the contaminants.

A community member asked what would bring the TDH back for additional studies and if there are a certain number of years that the TDH performs follow ups. Mr. Ordner indicated that the TDH does not have a routine monitoring program unless there is reason to believe that conditions have changed. Due to the cost of laboratory analyses for fish

work verses going somewhere that conditions may be worse, the TDH has to decide which projects to monitor. He noted that if data showed that levels had gone down, the TDH would reassess the situation. However, for Lake Worth, since PCBs are the main concern and so long-lived in the environment, this site is not viewed as a high priority.

A community member asked what if the Star Telegram had a headline stating that "Lake Worth citizens need to wait indefinitely before consuming fish." Mr. Ordner replied that the citizens should wait until further notice before consuming the fish of Lake Worth. John Maddox, a community member, inquired as to the ban on Mountain Creek Lake mentioning that the fish may be fine but the ban is still active. Mr. Ordner indicated that Mountain Creek Lake is going to be reevaluated. Mr. Maddox mentioned that Mountain Creek Lake is just an example but unless someone forces a follow-up study to be performed, a consumption advisory will remain for Lake Worth. Mr. Ordner replied that unless the Commissioner of Health rescinds the advisory, the consumption advisory will remain in affect. Brian Camp of the City of Fort Worth indicated that there are three other small city park lakes with similar problems, and those lakes are evaluated on average every 2 years. When there are lakes like Lake Worth, they are added to the sampling regiment. Mr. Ordner indicated that the City of Fort Worth is very proactive in fish sampling. Mr. Camp indicated that last year the City of Fort Worth sampled three lakes that had problems, and drastic reductions were seen, so the City has reason to go back in one year and reevaluate the lake instead of waiting for two years. Mr. Ordner mentioned that when a fish consumption advisory is issued by the TDH, the Texas Natural Resource Conservation Commission (TNRCC) automatically lists the impaired water body on its list.

A community member inquired if every agency would have to accept the protocol that the City of Fort Worth is following. Mr. Ordner indicated that the TDH uses EPA standards. A community member further asked if every agency would have to accept those standards. Mr. Order replied that the only difference is that the TDH does not use the EPA laboratories.

A community member questioned whether the contaminant is still coming into the lake and whether the lake is any good. Dr. Moring responded to this question sighting Mountain Creek Lake as an example. The USGS went after fish because it concerns particularly ATSDR and TDH risk assessment. At Mountain Creek Lake, the USGS did a lot of extensive sediment sampling on the bed of the reservoir to determine spatially across the reservoir where the majority of the contaminants were and where concentrations were highest. The USGS also cored the reservoir to try and understand what kind of water trends were seen in time. Sources at Mountain Creek Lake were performed using traditional stormwater sampling, and the continuing sources of contaminants of concern are entering the lake from runoff, nonpoint sources, and possibly from the neighborhood or facilities close to the reservoir. In the traditional stormwater sampling that was being done, PCBs would not be. Dr. Moring noted that they did find a continuing source but not a significant source.

A community member asked if there were any other alternatives other than time and mother nature silting in the lake to cover up the layer of sediments. Dr. Moring indicated that he would not give solutions, but would provide some possible scenarios. He mentioned that some people believe we should be dredging the lake; however given what has been seen in other water bodies, Dr. Moring feels that letting the sediment cap the

contaminants may be the best approach. He added that this is the situation at Mountain Creek Lake and similar contaminants are seen in Lake Worth; however, the entire story of Lake Worth is not known.

A community member inquired about the time it takes for a cap to develop on a general lake. Dr. Moring replied that deposition rates in developing urban environments are quick, rates of sediments coming in the reservoir and silting can occur quickly. The community member asked how quick. Dr. Moring indicated that a cap may form a few inches every year.

Gary Miller, USEPA, asked if the Air Force was going to conduct any follow-on investigation work to this fish tissue study, as this study began because of the AFP 4 Record of Decision. George Walters, USAF, asked Dr. Moring and Mr. Ornder if there was any follow-on work the Air Force could do. Mr. Walters indicated that the USGS gave the information directly to the TDH before the Air Force had seen the data. The USAF was going to wait for the TDH to present their conclusions. A community member suggested that we modify the study and separate the different species, so there are results for 55 of each species. Expanding the study would relieve the fears of a lot of citizens in this area and it would be done two years faster than the City of Fort Worth study. Mr. Walters indicated that we have data on all 55 fish; however we have only 10 data points for carp, 10 for bass, 10 for catfish, and 10 for drum. A community member asked if we would have the same confidence level if we analyzed for 55 fish. Mr. Walters replied that if we collected 55 fish for a given species, the band would narrow. A community member mentioned that it is a feasible project that will help the City of Fort Worth and the citizens. Mr. Walters indicated that the USAF would be interested in a follow-on study of sediment sampling. Carswell/AFP 4 have not used PCBs since 1988.

Westworth Redevelopment Authority

Ms. Pate introduced Leland Clemons who conducted a briefing on the activities and progress made by the Westworth Redevelopment Authority since his February 2000 briefing.

Program Update

Mr. Clemons indicated that there have been no closings on real estate, but the Westworth Redevelopment Authority has received four contracts, which are being evaluated for the property known as Kings Branch. This parcel is immediately across the street from the Shady Oaks Country Club.

The Westworth Redevelopment Authority Board will meet in a closed session the early part of next week to evaluate each of those contracts and proposals. Mr. Clemons mentioned that he is optimistic that the parcel will be sold. The Westworth Redevelopment Authority is also making progress on the removal of houses. Over half of the houses have been removed and contracts have been closed to complete the removal of those houses close to the end of July. Mr. Clemons indicated that the Westworth Redevelopment Authority is optimistic that the vast majority of houses will be removed, and if not, demolished. There are two contracts that are currently in negotiation regarding the sale of some of the commercial tracts on Highway 183. As the dates approach for the completion of

renovation, there is increasing interest and activity associated with the purchase of the parcels on Highway 183.

The renovation plans for the golf course are complete. There has been a history of water problems both with supply and delivery to the golf course. A reconfiguration needs to be done to the land that is to sell for parcel activity, so an architect is working on the golf course plans and has completed the sixth version of redevelopment or reconstruction. The Westworth Redevelopment Authority is optimistic regarding the layout and hope to be able to begin in November. Mr. Clemons mentioned that no decision has been made regarding whether the work will be done in phases or as a single project.

A community member asked if Mr. Clemons would expound on what the core contracts are. Mr. Clemons indicated that all core contracts are proposing residential development that would create a mixed, not apartments or multi-family, but larger houses on smaller lots, which translates into low maintenance and higher security. Whether or not there will be a gated community or several gated communities within this 40-acre parcel is unknown. A target is to develop a higher-end development in proximity to Shady Oak or near Shady Oak. According to Mr. Clemons, in feasibility analyses, using various professional groups to give guidance on what the market is looking at, it is thought that this kind of development will be successful. There is an absence of development and residential land on the westside of Fort Worth. All the major residential real estate developments have taken place in the southwest corridor or the northeastern mid-cities area. The westside of Fort Worth has been very well established in the high-end residential market and everything there is characterized as in-fill development, which means the tearing down of older homes and putting in newer ones. There is one new and upcoming property that is at the high-end, with the lowest price lot being $140,000. Mr. Clemons indicated that they will be comfortably below that price, but it will still be characterized as a high-end property.

Air Force Plant 4

Ms. Pate introduced George Walters to provide an update on the ongoing activities that are occurring at AFP 4. Mr. Walters explained that he is the Restoration Project Manager for Air Force Plant 4 from Wright-Patterson Air Force Base (AFB), Dayton, Ohio. Dayton, Ohio, is involved because back in 1940s during the war, the Air Force and military built hundreds of government-owned contractor-operated facilities around the country. The Air Force had 10 of these facilities left and taxpayers are the landlords; taxpayers own the Lockheed Facility (AFP 4). All 10 of these facilities are all managed out of Wright-Patterson AFB.

Mr. Walters explained that taxpayers are decreasing ownership of these buildings and the Air Force is down to 9 buildings. The Tulsa building, AFP 3, looks just like AFP 4. The AFP 3 building is also a mile in length. It was given to the city of Tulsa by Congress and Tulsa has redeveloped the AFP 3 building by bringing in bus manufacturers.

Project Update (Attachment 3)

Mr. Walters presented the status of the East Parking Lot, which is being set up for treatment systems (Attachment 4). This system will connect over 50 wells together by piping, so a drill rig will be needed in the runoff station area and it will be necessary to work closely with Lockheed to obtain access to that site.

Mr. Walters presented the status of the West Parking Lot dense non-aqueous phase liquid (DNAPL) problem, which is essentially a pure product that was discovered. The contractors are almost finished investigating it, and the report will be out in a couple of more weeks. This has been a phased approach over the past two years, due to the installation of deeper wells to find out how deep the DNAPL has gone. The top was excavated away, not knowing the DNAPL had gone deeper into fractures, and following the installation of a well, it was observed to have gone through the cracks of the walnut, the hard bedrock area that was thought to have been keeping the DNAPL in the upper zone. The DNAPL was actually going into the fractures. Mr. Walters indicated that most of the work is done at night when there are fewer cars, as air rotary drilling techniques are used that create a lot of dust. This whole area, about 14,000 cubic yards, was excavated back in the 1980s. Unfortunately, the DNAPL, being heavier than the groundwater, has gone deeper.

The Landfill 3 treatment system has been operating for over 5 years as a voluntary action project. This treatment system is operated to keep anything from seeping into the creek and going off-site. At Former Carswell AFB, AFP 4 has taken the lead on installing a treatment system next to some of their landfills and a couple of other sites where there may be commingled sources. In addition, Mr. Walters mentioned that AFP 4 has taken the lead on investigating and remediating the trichloroethene (TCE) plume. He noted that the treatment system removes contaminated groundwater, cleans out the organics, and then discharges the treated water for irrigating the golf coarse.

AFP 4 is conducting a six-phase soil heating pilot study to begin this summer. This study will heat the soil to vaporize the TCE at 95°C in order to drive the TCE off and perform a quick cleanup. AFP 4 is working with Carswell and Base Realignment and Closure (BRAC) regarding the transfer of the golf course since AFP 4 is the upgradient source of the commingled plumes.

Mr. Walters indicated that in the future, every Air Force base in the country is going to have a treatment system. He then discussed the future of the treatment systems that will be installed to help volatilize TCE. In addition, Mr. Walters briefed the RAB members regarding the AFP 4 budget for the year 2000.

Mr. Walters mentioned that all of the information he discussed and historical information regarding AFP 4 can be found at the library and will soon be available on CD-ROM.

Carswell Off-Base

Program Update (Attachment 5)

Mr. Vazquez introduced himself announcing that he deals with the BRAC portion of the base. BRAC handles the golf course, housing area, and the area where the horse stables used to be. BRAC is working on two sites, the Aerospace Museum and a closing report on the ground maintenance yard by the main gate. BRAC is in charge of closing both sites. Mr. Vazquez indicated that BRAC is in the process of obtaining additional funds to complete the investigations. He mentioned that there is also work on the Weapons Storage Area, which is about 5 miles from the base. All investigations have been completed and a lot of work has been done on this site and BRAC is in the process of submitting a report to regulators. Mr. Vazquez indicated that he hopes to have it in by June 2000. He added that as time gets closer, that particular parcel would be put up for sale.

A community member asked how much land would be transferred. Mr. Vazquez replied that there is 247 acres.

Mr. Vazquez discussed the Phase II Investigation that BRAC is conducting on the basewide sanitary sewer. He indicated that some sampling was performed initially, and now the investigation of those hits is being conducted. In addition, Mr. Vazquez indicated that the Navy recently conducted a video survey of the sewer lines and found some breaks that will need to be investigated. BRAC is trying to obtain funding for that project. Mr. Vazquez hopes to complete the project by December 2000 and so it can be transferred to the Navy for them to manage.

Mr. Vazquez mentioned that a large amount of time is spent on the landfills investigation. He discussed the plan to remove some contaminated soils from Landfill 8 and Waste Pile 7, and to install clay caps on Landfills 4 and 5. This work should be complete in September 2000. All the other sites have already been closed.

Mr. Vazquez discussed the property transfer status. He indicated that within the next 2 weeks, land would be transferred from the Federal Bureau of Prisons. A letter was received from the TNRCC regarding the underground storage tank (UST) and the transfer of this property should be finished by the end of the month. In addition, BRAC will transfer approximately 1,700 acres to the Navy and it is a federal transfer that should happen within the next month.

BRAC has transferred 176 houses located near Highway 183 to the Westworth Redevelopment Authority. The next transfer is across the street at Kings Branch Housing Area. This will be transferred in July to the Westworth Redevelopment Authority. A public sale will be held in the fall for the Weapons Storage Area. The remaining areas are the horse stable area and that should be transferred later in the year. The golf course will take at least two more years before making a decision on the transfer of this property due to groundwater contamination that is underneath the golf course.

Carswell On-Base

Ms. Pate introduced Mike Dodyk who provided an update of Carswell On-Base activities (Attachment 6).

Project Update

Mr. Dodyk began his briefing by presenting an overview of the Resource Conservation Recovery Act (RCRA). When Carswell AFB was active, the Air Force was issued a RCRA permit, which is issued for the storage of hazardous waste generated on a facility. He noted that at this time, this permit is jointly held by the Air Force and the Navy. In order to transfer the base from the Air Force to the Navy, the Air Force is required to close certain sites listed on this permit. In closing sites, the first step is a RCRA Facility Investigation (RFI) and this is what is currently taking place. There are Installation Restoration Program (IRP) sites that are being investigated. Some of these sites are called solid waste management sites units (SMWUs) and they are numbered, for example, SMWU 23. SMWUs consist of landfills, waste accumulation areas for hazardous waste, oil water separators, and storm water drainage systems. Mr. Dodyk indicated that there are other sites, like underground storage tanks and the fueling stations, as well as fire training areas. He indicated that the RFI being conducted for the landfills is in its third phase of sampling. Mr. Dodyk mentioned that this third phase of field sampling for this project started last month and is currently ongoing for Landfills 1, 2, 3, 6, 7, and 9. Part of the investigation is soil and groundwater sampling. This RFI report for the landfills is planned for submittal to the Air Force Center for Environmental Excellence (AFCEE) later this year, pending the completion of the delineation activities. Mr. Dodyk mentioned that the Air Force has 10 landfills and they are numbered in sequence. An RFI report was issued for Landfill No. 10 recommending no further action at this landfill. This report was submitted to the TNRCC in March 2000 and TNRCC has approved the request for no further action at this site.

- Waste Accumulation Areas

Mr. Dodyk discussed the Phase II RFI at the waste accumulation areas. A work plan was presented to the TNRCC stating the plan to investigate these areas. He mentioned that soil and groundwater sampling occurred at 9 of the 16 waste accumulation areas on base. The field work started in April and is currently ongoing. Mr. Dodyk indicated that an RFI report is being prepared for submittal to TNRCC this summer and will present the findings for the nine sampled waste accumulation areas. In addition, he added that a report will be submitted to the TNRCC recommending no further action at the remaining seven sites.

- Solid Waste Management Units

Mr. Dodyk discussed the investigation at SWMUs 19, 20, 21, and 53, which are also known as areas of concern (AOCs). He explained that AOCs are suspected contamination sites but they are not as serious as IRP Sites. Fieldwork began this month at SWMUs 19, 20, and 21. Mr. Dodyk noted that these three sites are associated with Fire Training Area No. 2. He noted that SWMU 53 is the stormwater drainage system. Additional AOCs are AOC 17, which is a suspected landfill, and AOC 18 and 19 that are both suspected former fire training areas.

Mr. Dodyk indicated that typical investigation activities for these sites include geophysical surveys, soil sampling, and groundwater sampling if necessary.

- Underground Storage Tank

Mr. Dodyk discussed the five underground storage tank reports that were submitted to the TNRCC in March, recommending closure. He noted that closure implied that the investigation was complete and no additional work is needed. Mr. Dodyk indicated that the remaining seven USTs require additional soil and/or groundwater sampling to be conducted since the initial results were inconclusive. He mentioned that the Final Work Plan for AOC 1, the former gas station, is another UST area. Field work started this week with the installation of new monitoring wells to further investigate the old gas station problem.

- AOC 4 Site Investigation

Mr. Dodyk discussed the investigation of AOC 4, the fuel hydrant system. Field efforts were completed in January 1999. The Draft Site Investigation Report and Assessment Report form was submitted to the TNRCC in August 1999. Mr. Dodyk noted that weekly free-product removal continues, as necessary, in addition to semi-annual groundwater monitoring. He noted that the Final Groundwater Sampling Report for 1999 will be submitted this summer.

- AOC 13

Mr. Dodyk discussed the corrective measures at AOC 13, an oil/water separator and UST that is located adjacent to Building 1145, the Auto Hobby Shop. He noted that a site investigation in 1998 identified contamination beneath the hobby shop, where the oil/water separator and UST had leaked. Mr. Dodyk indicated that on Monday May 15, the oil/water separator, UST, and contaminated soil will be removed. A new oil/water separator system will be installed after the existing one is removed. He noted that when this project is complete, it should only take two weeks to verify that there is no contamination remaining in the soil. A report will be prepared and submitted to AFCEE this fall documenting all activities and to verify that all contamination was removed.

- SWMUs 45, 54, and 55

Mr. Dodyk discussed the delivery order awarded in March by AFCEE to HydroGeoLogic, Inc. This delivery order includes the investigation of three SWMUs: SWMU 45, a waste oil tank vault; SWMU 54, 5 storm water interceptors; and SWMU 55, the East Gate oil/water separator. Mr. Dodyk indicated that the majority of the stormwater flowed through the SWMU 55 oil/water separator and an investigation must be performed to see if there was any impact associated with storm water discharges at this site.

- Basewide Oil/Water Separators

Mr. Dodyk discussed the status of the ongoing oil/water separator investigation basewide. He explained that oil/water separators where installed to catch the oil

coming from the floor drains of certain buildings. In April, International Technology Corporation (IT Corp.) began field work sampling the soil and groundwater surrounding these devices to see if any of the contamination had overflowed or leaked on these facilities. Mr. Dodyk noted that fieldwork should last through the end of the month.

- Groundwater Sampling and Analysis Program (GSAP)

Mr. Dodyk indicated that the year 2000 Groundwater Sampling and Analysis Plan (GSAP) was completed. He mentioned that the 1999 Annual Report presents the plume characteristics and trends since the beginning of the GSAP. He noted that last month 34 wells were sampled as part of the quarterly groundwater monitoring, and a work plan has been prepared and approved by the TNRCC to have 12 monitoring wells abandoned, and 5 repaired. Mr. Dodyk indicated that fact sheets discussing all of the today's discussions were in the back of the room (Attachment 7).

Next Meeting Agenda

The RAB charter will be discussed at the next meeting.

Open Discussion/Questions

The signup for air show to be held May 13-14, 2000, at NAS Fort Worth, JRB, was available for interested parties.

Adjournment

The next RAB meeting is scheduled for August 10, 2000.
The meeting was adjourned at 8:30 p.m.

In Attendance

Carswell ERA (On-Base)
- Mike Dodyk, HQ AFCEE/ERD
- Don Ficklen, HQ AFCEE/ERD
- Mike Hawkins, HQ AFCEE/MSP
- Audrie Medina, Universe Technologies
- Eric Dambaugh, HydroGeoLogic, Inc.
- Kent Duran, HydroGeoLogic, Inc.
- Todd Harrah, HydroGeoLogic, Inc.
- Lynn Morgan, HydroGeoLogic, Inc.
- Miquette Rochford, HydroGeoLogic, Inc.
- Jennifer Wallace, HydroGeoLogic, Inc.
- Jorie Wilson, HydroGeoLogic, Inc.

Carswell AFBCA (Off-Base)
- Alvin D. Brown, AFBCA
- Rafael Vazquez, AFBCA
- Charles Pringle, HQ/AFCEE/ERB

Leland Clemons, Westworth Redevelopment Authority
Amy Hardberger, Universe Technologies

Air Force Plant 4
W. Dennis Scott, ASC/ENVR
George Walters, ASC/ENVR
Dan Johnson, ASC/ENVR
Victor Dozzi, IT Corporation
Rick Wice, IT Corporation
Jaime Lopez, Universe Technologies

United States Navy
Commander Craig McDonald
J. D. Davis, Navy

Texas Natural Resource Conservation Commission
Ray Risner, Central Office
Tim Sewell, Region 4
Ludmila Voskov, Central Office

United States Geological Society
Dr. J. Bruce Moring

United States Environmental Protection Agency
Ruben Moya, Region VI
Gary Miller, Region VI

Others, Off-Base
Carrie Baran, Community Member
G.H. Brandon, Community Member
Nick Dear, Community Member
Mike Gross, Community Member
John Maddox, Community Member
W.F. Olshefski, Community Member
J'Nell Pate, Community Member
Ruth Reynolds, Community Member
Robert Taylor, Community Member
J. F. Whitcomb, Community Member
Greg Hendrickson, City of River Oaks
D.W. Owen, River Oaks
Gale Cupp, Neighborhood Association, South Lake Worth
Brian Camp, City of Fort Worth
Mary Gyaliuzza, City of Fort Worth Water Department
Jim Soanlen, City of Fort Worth Water Department
Oliver Stacks, Lake Worth Homeowners Association
Ralph Strong, Lake Worth Civic Club
Ken Bickel, Texas Public Water Department
Mike Ordner, Texas Department of Health
Karen Scarborry, DCMC
Steve Hughes, TETRA TECH
Robert Thompson, TETRA TECH

Air Force Plant 4
Operated by Lockheed Martin Aeronautics Company, Fort Worth, Texas
Fact Sheet
Aeronautical Systems Center • Wright-Patterson Air Force Base, Ohio • May 2000 • PAM 00-

TDH issues fish consumption advisory for Lake Worth

The Texas Department of Health (TDH) issued a fish consumption advisory for Lake Worth on April 19, 2000. The advisory is the result of PCBs found in the tissues of certain species of fish during a tissue sampling project, which took place in March, 1999, in response to an indeterminant finding identified in the *Public Health Assessment*.

In July 1998, the Agency for Toxic Substances and Disease Registry (ATSDR), in conjunction with the TDH, published the *Public Health Assessment* for the Air Force Plant 4 area. The aim of the assessment is to determine if people are being exposed to hazardous substances and, if so, whether that exposure is harmful and should be stopped or reduced. In the assessment, the ATSDR and TDH evaluated all relevant environmental and health information about the site.

Technicians from the U.S. Geological Survey employ "electrofishing" techniques to gather specimens for tissue testing.

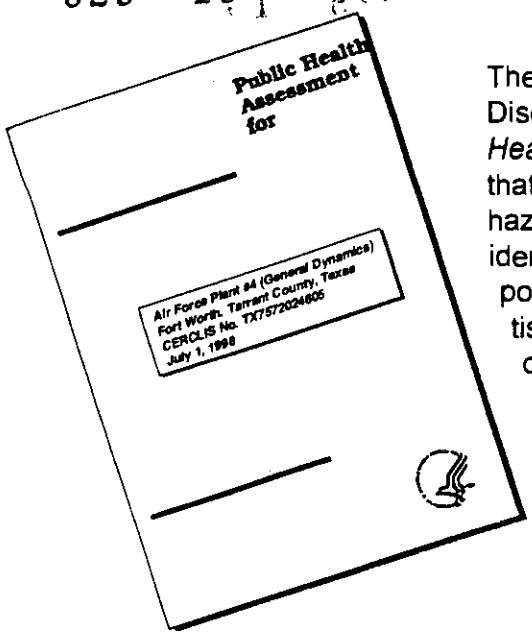
The assessment identified several situations which may allow people to come into contact with contaminants in the foodchain, sediment, surface water, soil and groundwater. The overall evaluation concluded that AFP 4 presents no apparent public health threat, however, it also determined that tissue of fish in the lake required additional investigation.

The assessment identifies an indeterminate public health hazard, referring to the possibility of contamination finding its way through the aquatic foodchain and into the tissues of Lake Worth's edible fish. These include largemouth bass, buffalo fish, drumfish, catfish, white crappie and common carp. Because long term exposure to the contaminants could pose a public health hazard, the ASTDR and TDH recommended that edible fish tissues be collected from Lake Worth for analysis.

The United States Geological Survey (USGS) collected samples of each species for analysis in March, 1999. At least 10 of each species were caught, some from the area near the confluence of Meandering Road Creek and Lake Worth. The USGS's National Water Quality Laboratory analyzed the tissues for trace metals and certain organic compounds. The USGS then sent a report of its findings to the TDH.

The TDH analyzed the findings and determined that the tested tissues contained little or no contaminants harmful to public health, with the exception of polychlorinated biphenyls, or PCBs. PCBs are industrial compounds once used in lubricants, transformers and electrical capacitors. Although banned in 1979, PCBs

529 19 pc.



The Agency for Toxic Substances and Disease Registry published the *Public Health Assessment*, which concludes that AFP 4 presents no apparent health hazard. The assessment did, however, identify one indeterminant finding, the possibility of contam-ination in the tissues of fish in the lake. In its continuing efforts to be a good steward of the environment, the Air Force commissioned the USGS to sample fish in the lake. This effort identified the PCBs in the fish tissues.

can persist for years. They do not dissolve in water and pose no risk to to the water supply. PCBs settle to the bottom of bodies of water and mix the with sediments. Bottom-feeding fish, such as carp and catfish, ingest the compounds, allowing PCBs to settle in the tissues

The PCB contamination can originate from anywhere that electrical power was used prior to the 1980s. The PCBs could have come from any landfills and industrial facilities around Lake Worth, or from deposition through the atmosphere, based on contaminant levels found throughout the lake. USGS officials note that there is no body of water in the area where PCBs are not present.

The TDH has the authority under the Texas Health and Safety Code to issue fish consumption advisories or bans for the public waters of the state. At the request of the USGS and the Air Force, the TDH reviewed data from the 55 fish samples collected from Lake Worth. After reviewing the data, a Health Consultation was written to explain the risk of consuming fish from Lake Worth. As part of the findings in this risk assessment, the TDH looked at both cancer and non-cancer effects from long term consumption of the fish.

The TDH findings are mixed. No metals were found to be at levels that would impact human health. Of several organic compounds found in the fish tissues, PCBs had the greatest impact on the risk factor (see blue box at right). The TDH concluded from this health consultation that persons should not consume fish from Lake Worth, due primarily to the non-cancer effects.

PCBs and Human Health

The TDH notes that PCBs are a probable human carcinogen with primary impact on the liver. For this fish tissue sampling project, the TDH calculated the risk for cancer as one excess cancer in 12,500 persons, which does not exceed the one in 10,000 risk level at which a consumption advisory would be issued. The number of calculated meals, looking at cancer effects, is determined to be about five eight-ounce servings per month.

However, PCBs also have non-cancer effects, including chloracne (a type of skin disorder), high blood pressure, gastric ulcers, anemia, changes in immunological function, swelling and reddening of the eyes, change in liver enzymes at low doses, and enlargement and degeneration of the liver with long-term, high-dose exposure. The Environmental Protection Agency calculated reference doses for contaminants concerning these types of non-cancer effects. In this case, the calculated number of meals for non-cancer effects was about one eight-ounce serving per month. This exceeds the level of risk that would trigger the TDH to issue a consumption advisory.

For more information, contact George Walters, remedial project manager, at our toll free number 1-800-982-7248, ext. 416, or Daniel Johnson, environmental public affairs specialist, ext. 346.

Chemical Quality of Edible Fish Tissues in Lake Worth, Fort Worth, Texas

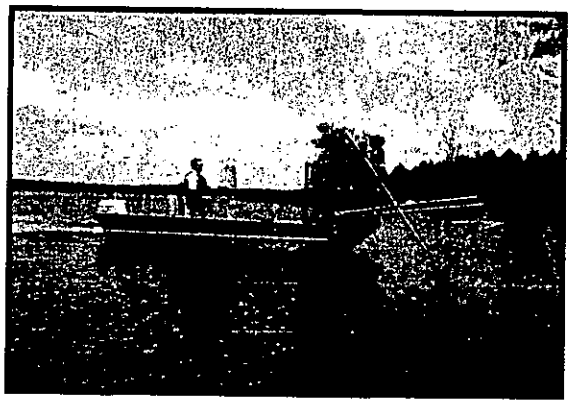
USGS science for a changing world

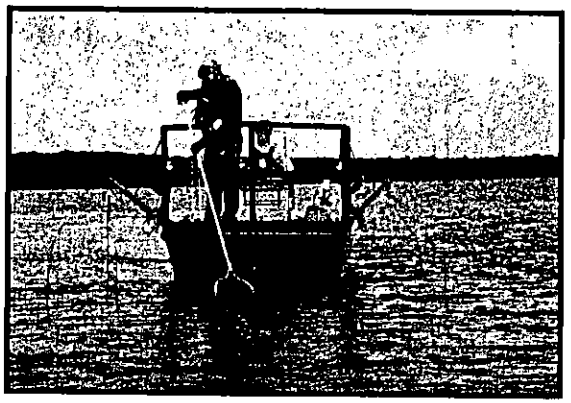
DEPARTMENT OF THE AIR FORCE · UNITED STATES OF AMERICA ·

Background

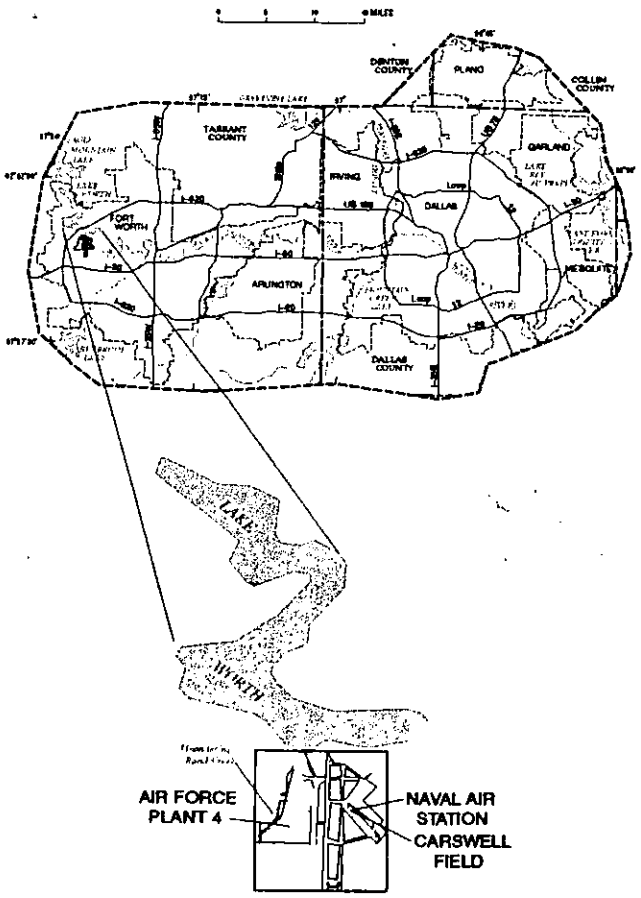
Ground-water contamination of the surficial aquifer has occurred at Air Force Plant 4 (AFP4) and the adjacent Naval Air Station, Joint Reserve Base, Carswell Field in Fort Worth, Texas. In August 1990, AFP4 was placed on the U.S. Environmental Protection Agency National Priorities List as a Superfund site. The ground-water contaminants of principal concern are trichloroethene (TCE) and chromium. A public-health assessment of the Superfund site conducted for the Texas Department of Health (TDH) and Agency for Toxic Substances and Disease Registry (ATSDR) determined that exposure to contaminants through the aquatic food chain is an indeterminate human-health hazard.

Concentrations of polychlorinated biphenyls (PCBs), specifically aroclor mixtures 1254 and 1260, dieldrin, naphthalene, phenanthrene, and benzo(b)fluoranthene were elevated in the tissues of mosquitofish collected from Lake Worth, which is adjacent to AFP4. However, tissues from fish that are routinely caught in Lake Worth and consumed by the public were not analyzed for these contaminants. Based on these findings, the TDH and the ATSDR recommended that edible fish tissues be collected from Lake Worth near the Lake's confluence with Meandering Road Creek for analysis of these and other contaminants to determine if a public health hazard exists.





Fish collection by boat electrofishing



Objectives and Scope

The U.S. Geological Survey (USGS) is providing the U.S. Air Force and the Seafood Safety Division of the TDH with data and information required to support a human-health risk assessment associated with public consumption of fish from Lake Worth. Freshwater drum, largemouth bass, channel catfish, common carp, white crappie, and smallmouth buffalo were collected for analysis of selected organic compounds: organochlorine pesticides, PCBs, polycyclic aromatic hydrocarbons (PAHs), and trace metals.

Task 1. Coordination of the fish species selected, sample size per species, analytes and analytical reporting levels, and protocols for fish and edible tissues collection activities were done with the approval of the TDH Seafood Safety Division.

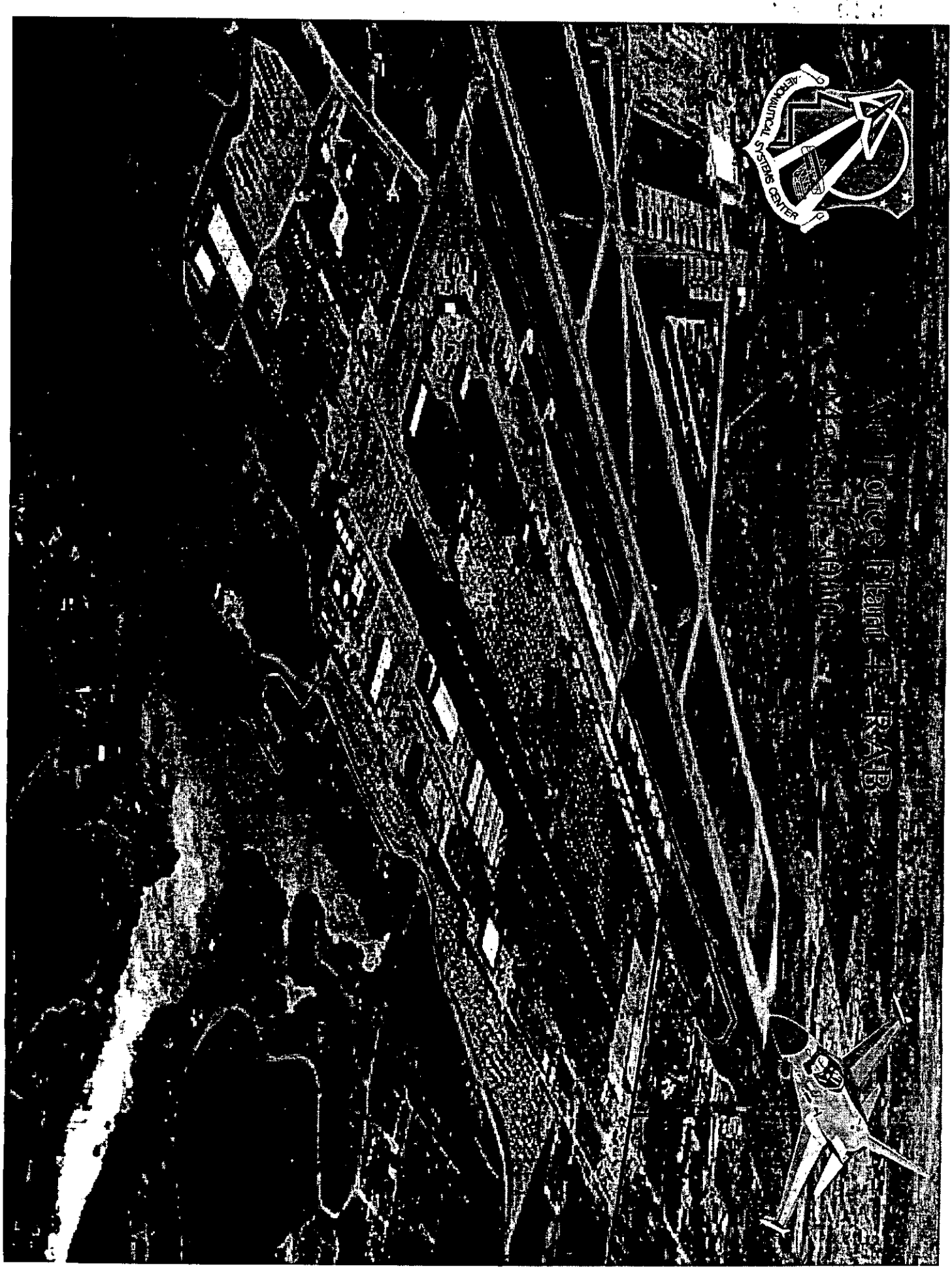
Task 2. Fish from several groups that are commonly caught and consumed by the public in Lake Worth were collected. Species included freshwater drum, largemouth bass, channel catfish, common carp, white crappie, and smallmouth buffalo. A minimum of three individuals per species were collected.

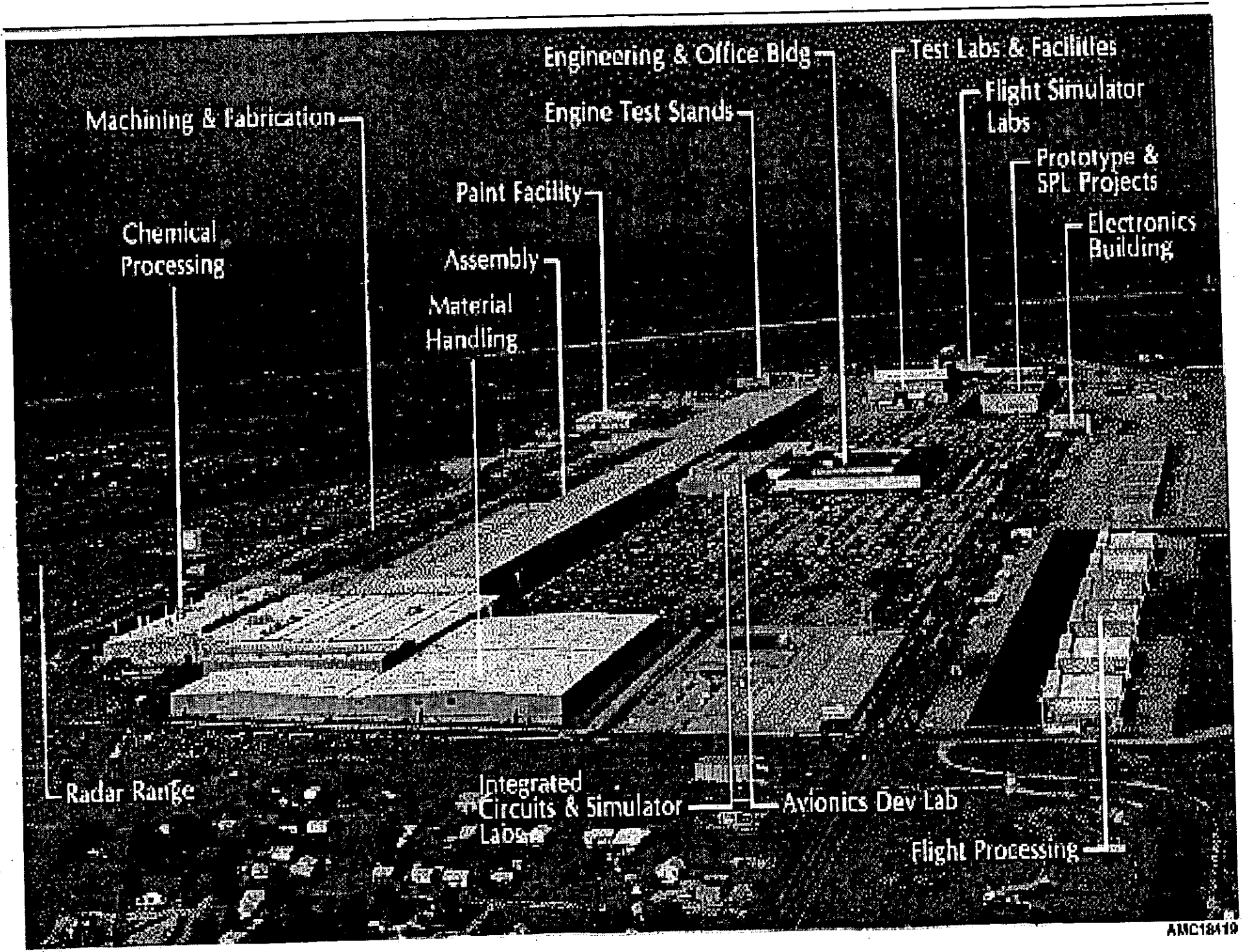
Task 3. A left-side, skin-off fillet from each individual per species for the analysis of selected organic compounds and trace metals was collected. A subsample of each fillet to was collected for the analysis of trace metals. The remains of the fillet were used for the analysis of organic compounds.

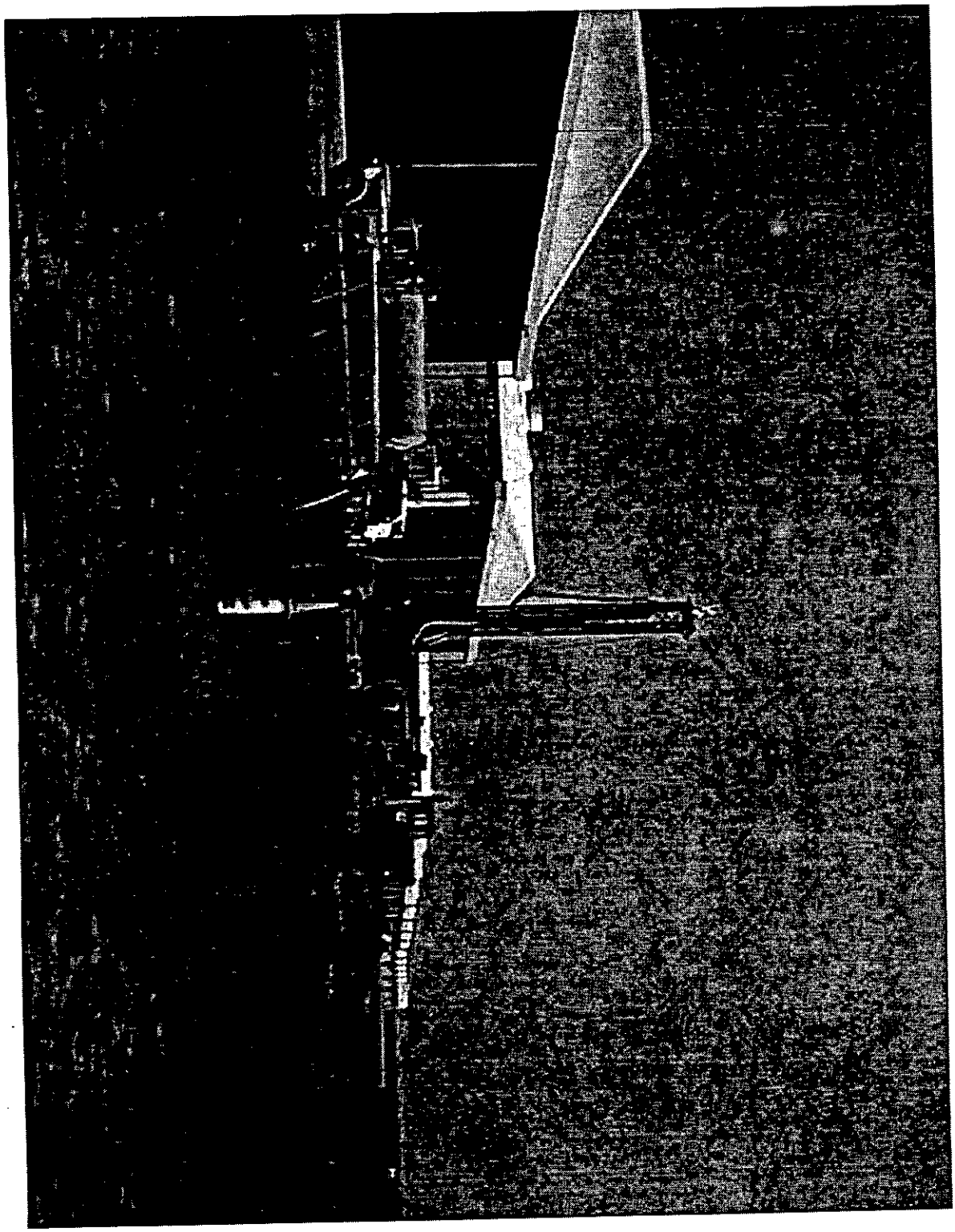
Task 4. Samples were submitted to the USGS National Water-Quality Laboratory for analysis.

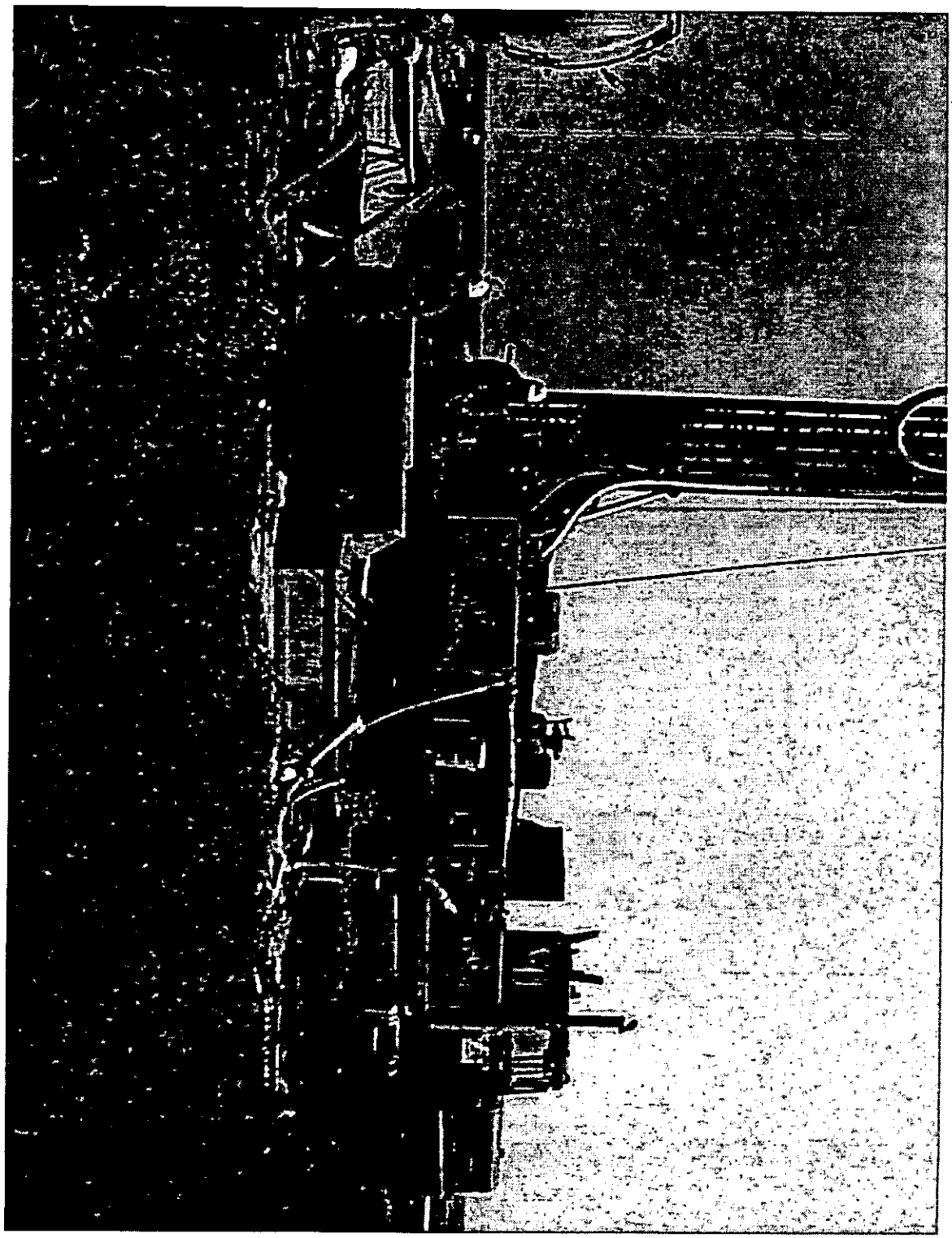
Task 5. Preparation of a USGS report presenting the results from the study is in progress.

529 20

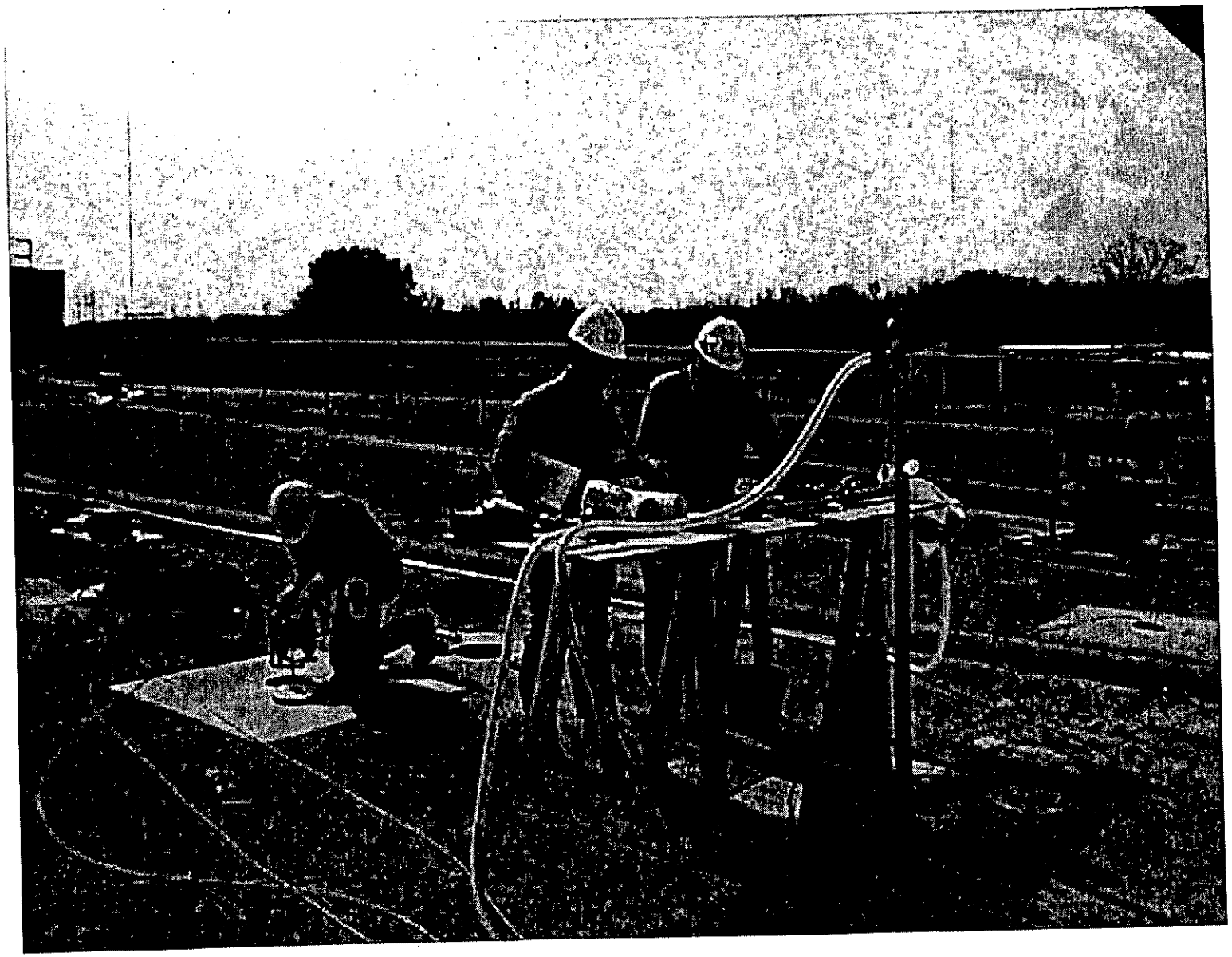

AERONAUTICAL SYSTEMS CENTER
Air Force Plant 42 / PAD


Engineering & Office Bldg
Test Labs & Facilities
Flight Simulator Labs
Engine Test Stands
Machining & Fabrication
Prototype & SPL Projects
Paint Facility
Electronics Building
Chemical Processing
Assembly
Material Handling
Radar Range
Integrated Circuits & Simulator Labs
Avionics Dev Lab
Flight Processing
AMC18419

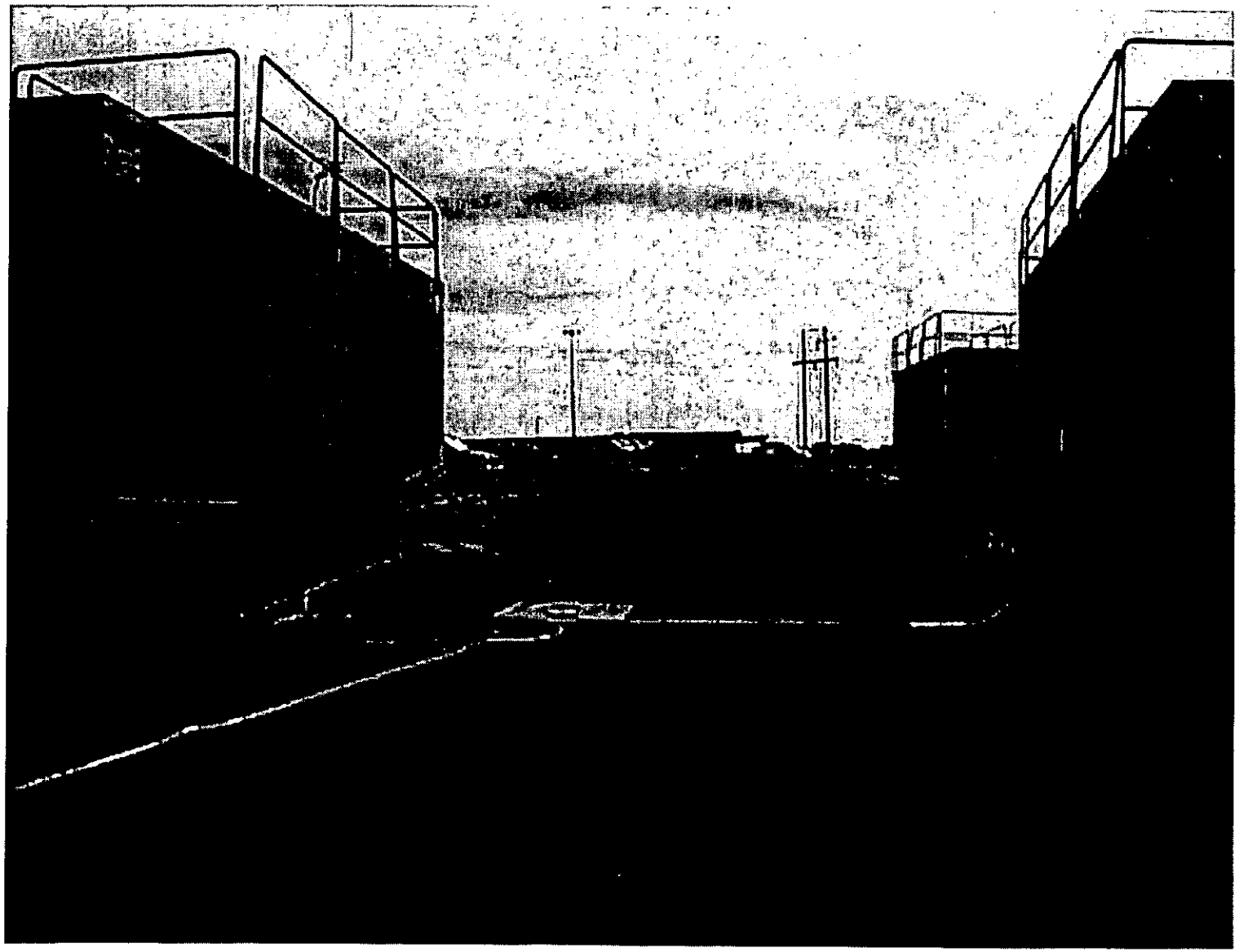


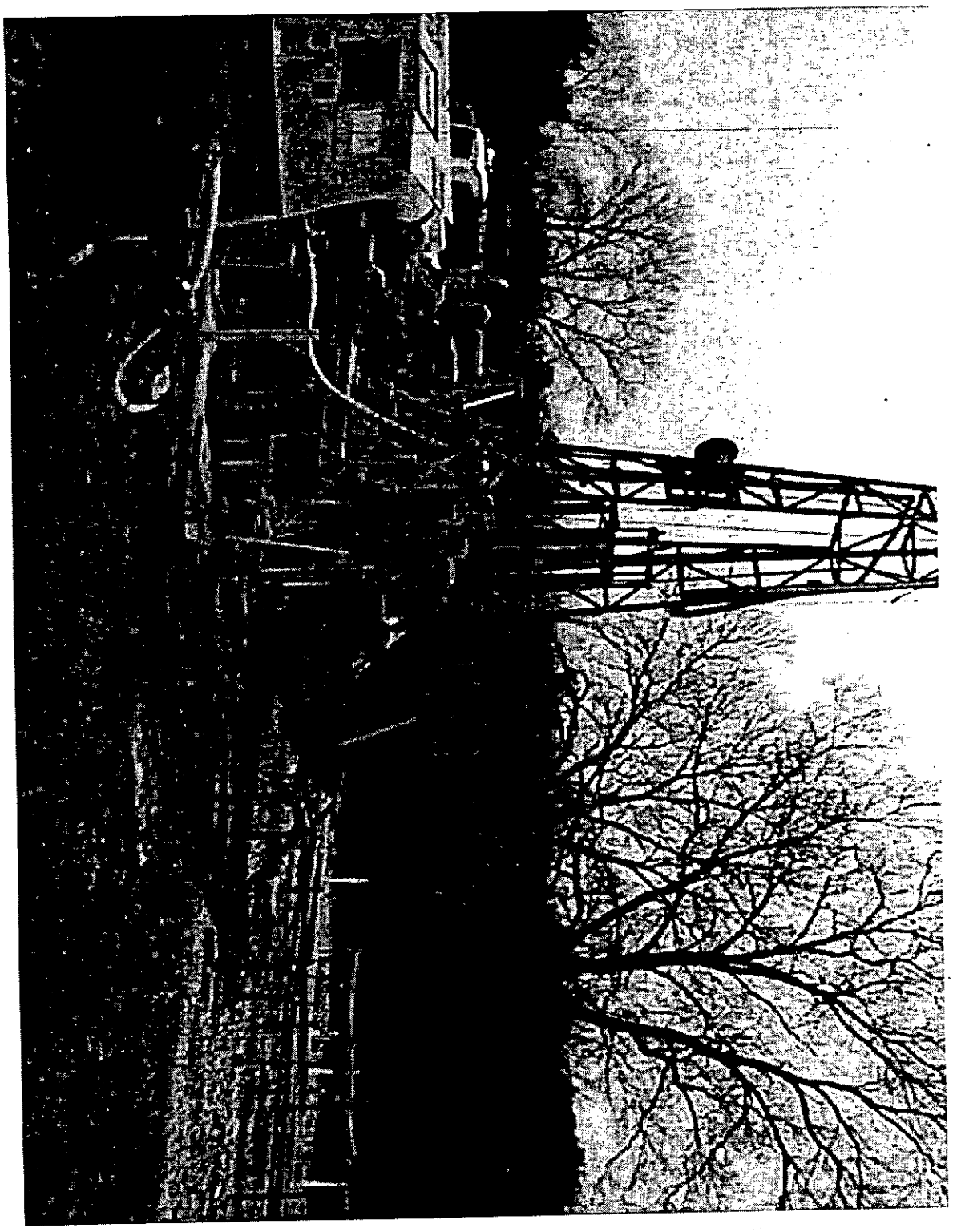


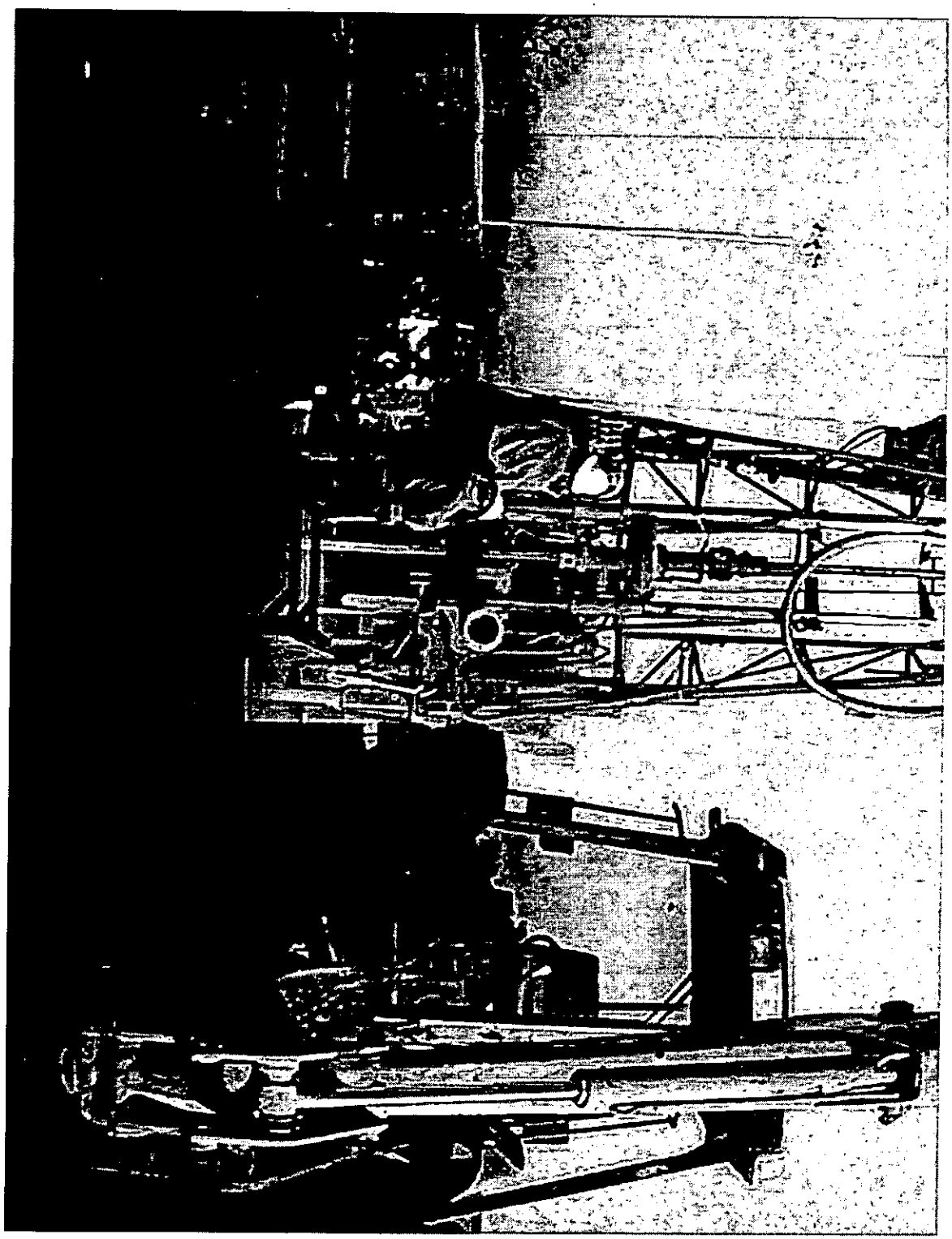
West Parking Lot Inv



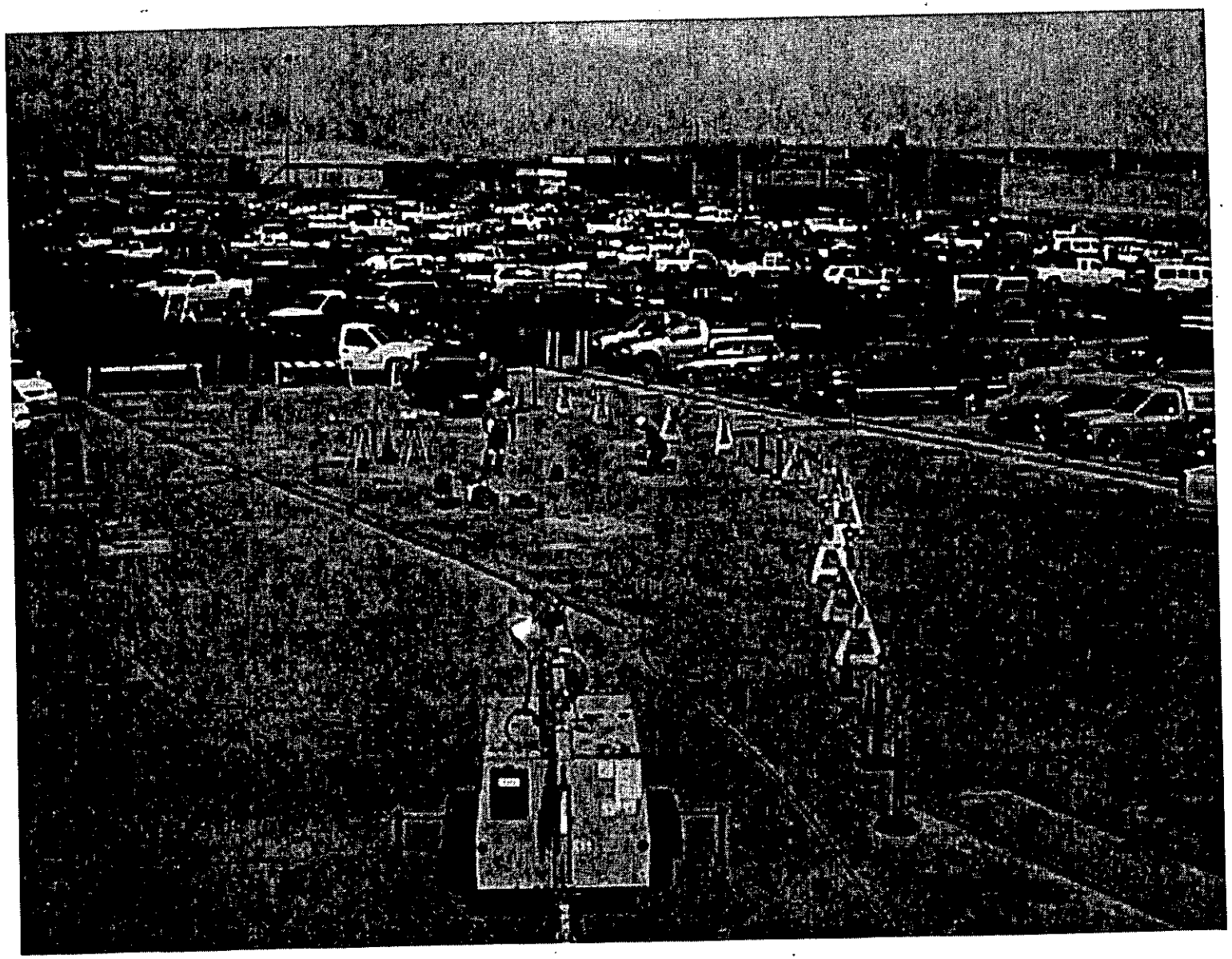
West Parking Lot Inv



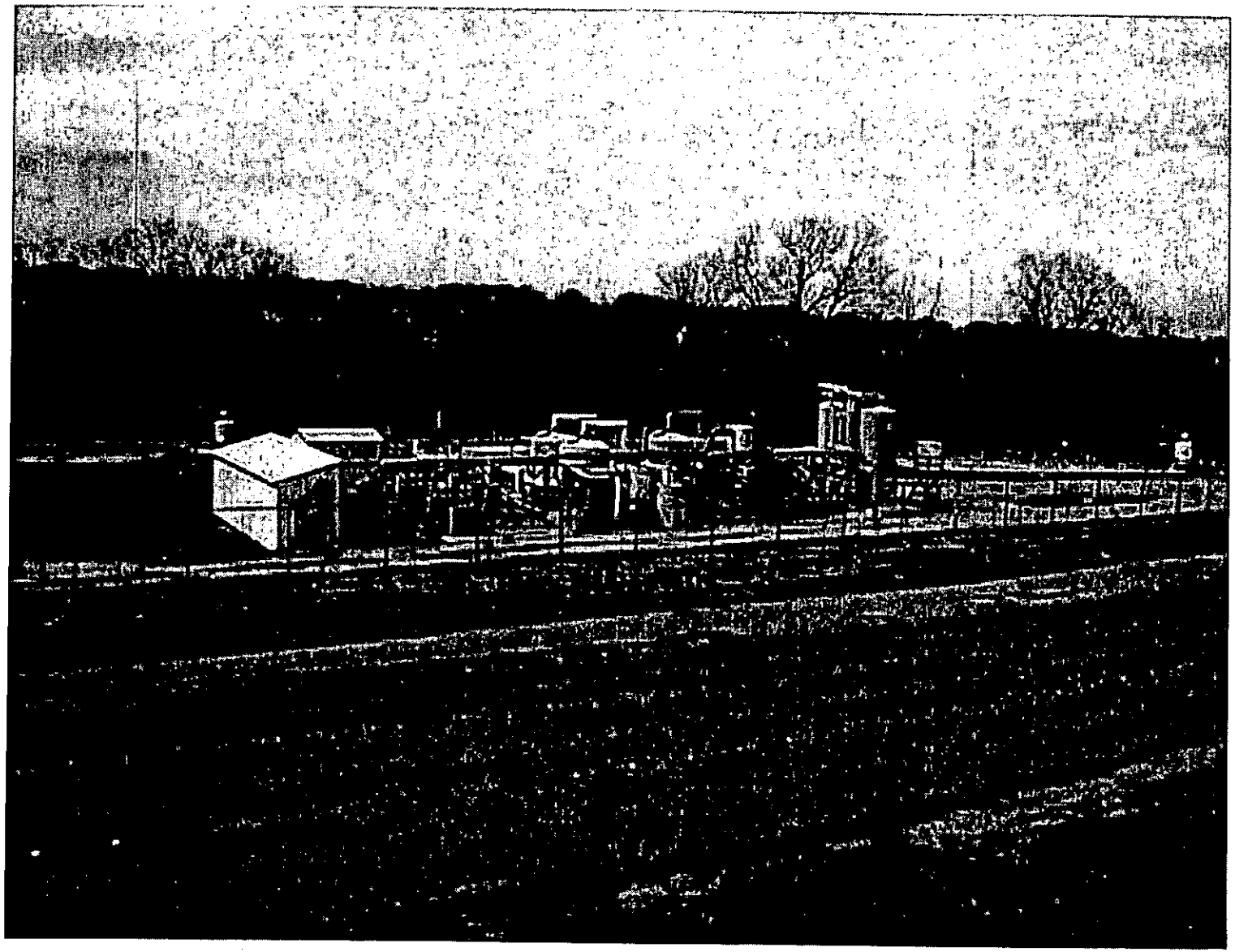




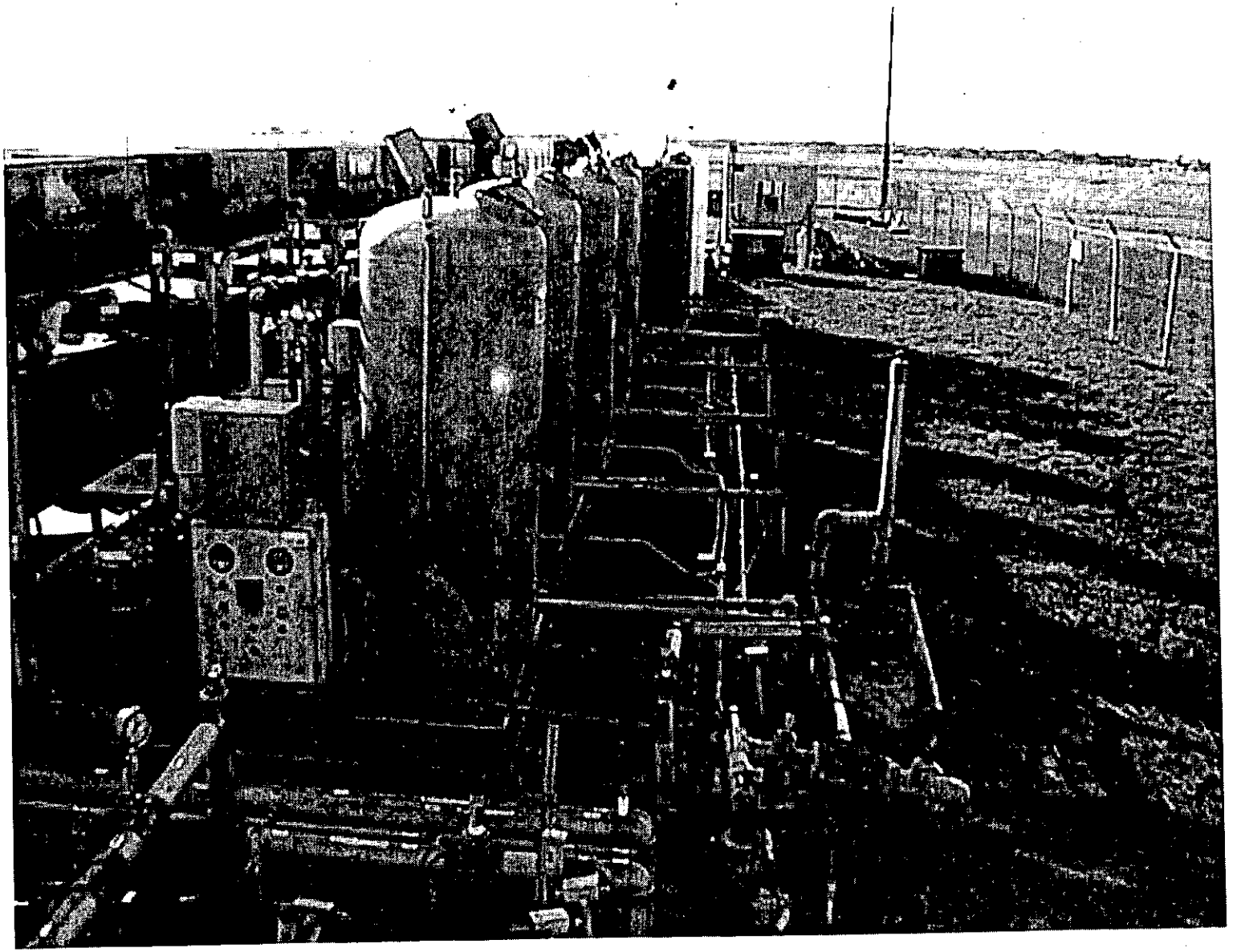
West Parking Lot Inv



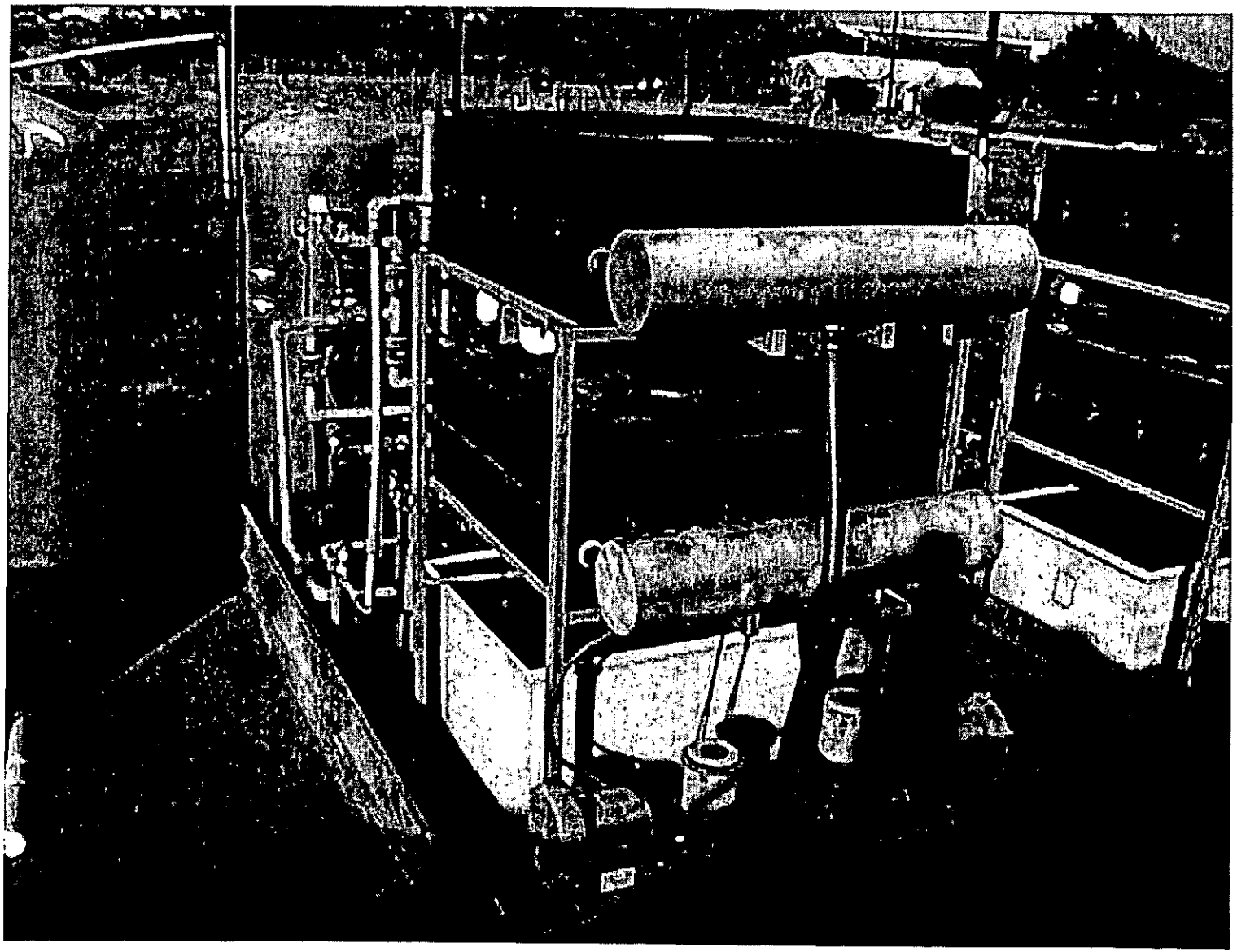
Landfill #3 Groundwater Treatment System



Carswell AFB Landfill 4/5 Treatment System



Carswell AFB Landfill 4/5 Treatment System



FY2000

Operations and Maintenance	$1,282,399.
Remedial Actions- Lockheed	$ 205,000.
Long-term Monitoring	$ 260,000.
In-situ Oxidation	$ 180,000.

Tentative FY2001 Budget Submittal

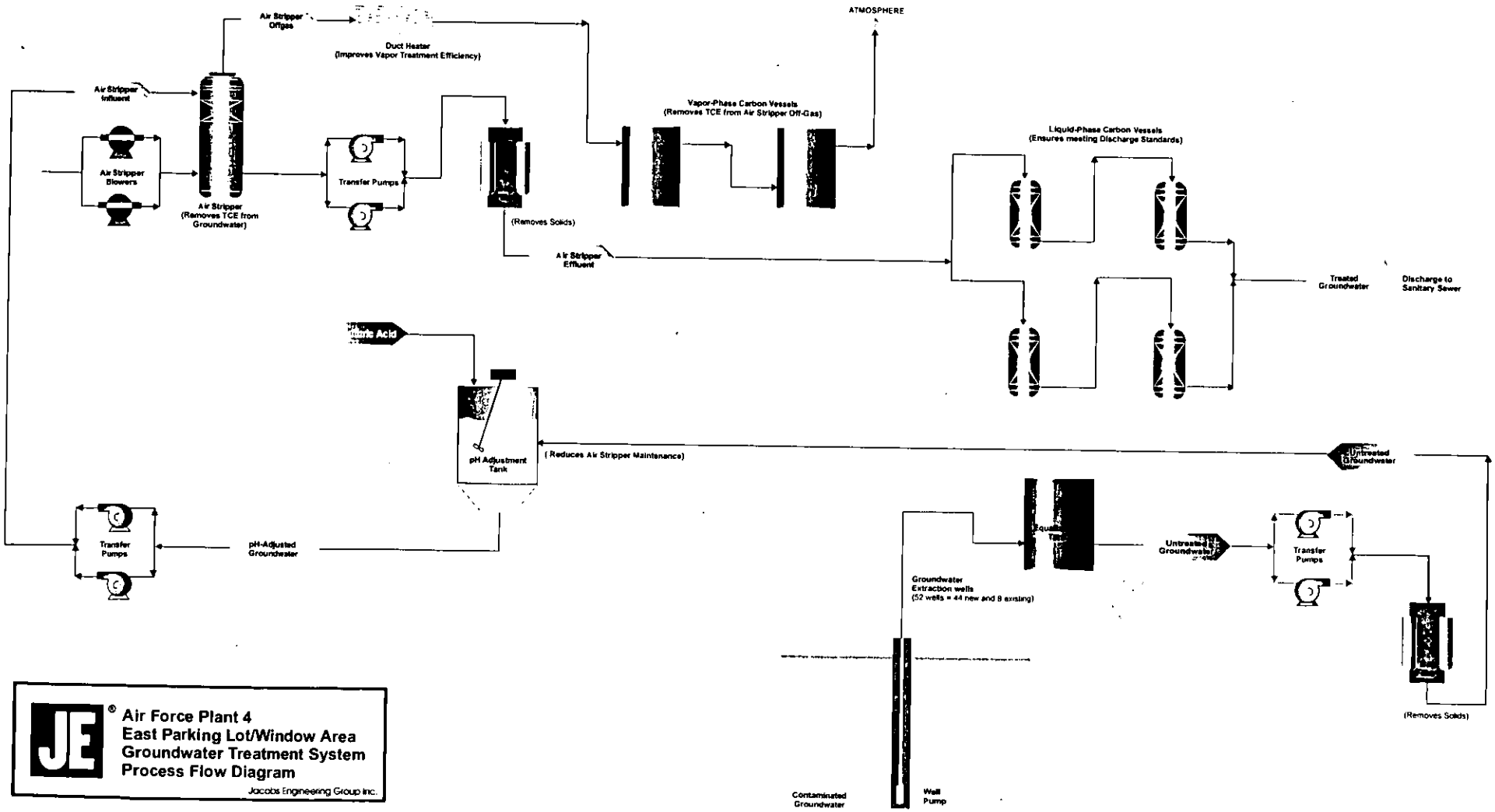
Operations and Maintenance	~$1,500,000.
Remedial Actions- Lockheed	~$ 250,000.
Long-term Monitoring	~$ 350,000.
Full Scale Six Phase Heating	~$5,000,000.
Document 5 Year ROD Review	~$ 50,000.
West Parking Lot Remedial Action	~$2,000,000.
Carswell Plume Actions	~$2,000,000.

Operations and Maintenance "Systems"

East Parking Lot
Landfill #3
Fuel Saturation Area 1
181 Soil Vapor Extraction System
Carswell AFB Landfill 4/5 System
West Parking Lot "Proposed System"

Includes: Electrical, water disposal (treated) sanitary sewer, natural gas, Soil testing and disposal,

Document Conversion Micro to CD ROM!



Air Force Plant 4
East Parking Lot/Window Area
Groundwater Treatment System
Process Flow Diagram

Jacobs Engineering Group Inc.

529 37

PROGRAM STATUS

- CLOSURE REPORTS
  - AEROSPACE MUSEUM
  - GROUNDS MAINTENANCE YARD
- WEAPONS STORAGE AREA
- SANITARY SEWER INVESTIGATIONS
- LANDFILL INVESTIGATIONS
  - LANDFILLS 4, 5, AND 8
  - WASTE PILE 7

PROGRAM STATUS
CLOSURE REPORTS

- ADDITIONAL FUNDS AND INVESTIGATIONS NEEDED FOR AEROSPACE MUSEUM AND GROUNDS MAINTENANCE YARD

- CLOSURE REPORTS WILL BE REVISED AND SUBMITTED IN FALL 2000

PROGRAM STATUS
WEAPONS STORAGE AREA

- ADDITIONAL FIELD INVESTIGATIONS COMPLETED SEPTEMBER 1999
- ADDITIONAL FIELD WORK FOR ADDITIONAL SOIL EXCAVATION COMPLETED IN NOVEMBER 1999
- SUBMIT CLOSURE REPORT TO REGULATORS IN JUNE 2000

PROGRAM STATUS
SANITARY SEWER INVESTIGATIONS

- PHASE II INVESTIGATIONS FUNDED AND INVESTIGATIONS ARE ONGOING
- VIDEO SURVEY OF SEWER LINES BY NAVY IDENTIFIED ADDITIONAL CONCERNS (LINE BREAKS)
- OBTAINING ADDITIONAL FUNDS FOR PHASE III INVESTIGATIONS
- COMPLETE INVESTIGATIONS AND WRITE CLOSURE REPORTS BY DECEMBER 2000

PROGRAM STATUS
LANDFILL INVESTIGATIONS

- ADDITIONAL FIELD INVESTIGATIONS TO COMPLETE RCRA FACILITY INVESTIGATION (RFI) ONGOING
- RFI REPORT SCHEDULED IN JULY 2000
- COMPLETE DESIGN OF CORRECTIVE MEASURE IMPLEMENTATION (CMI) FOR SOILS ONLY IN MAY 2000
- COMPLETE CONSTRUCTION OF CMI IN AUGUST 2000

PROPERTY TRANSFER UPDATE

- FEDERAL BUREAU OF PRISON HOSPITAL
  - TNRCC UST CLOSURE LETTERS RECEIVED APRIL 2000
  - SCHEDULED TO BE COMPLETE IN MAY 2000
- LAND TRANSFER TO NAVY IN MAY 2000
- KINGS BRANCH HOUSING AREA IN JULY 2000
- WEAPONS STORAGE AREA IN SEPTEMBER 2000
- HORSE STABLES AREA IN OCTOBER 2000

NAS Fort Worth JRB Installation Restoration Program Update

Michael R. Dodyk

May 11, 2000

HYDRO GeoLogic INC.

Resource Conservation and Recovery Act (RCRA) Permit

- For storage and processing of hazardous wastes generated on base.
- Originally held by the Air Force from when Carswell AFB was active.
- Currently held jointly by Air Force and Navy.
- Air Force must close sites listed on the permit.
  - RCRA Facility Investigation required.

HYDRO GeoLogic INC.

Installation Restoration Program (IRP) Sites Under Investigation

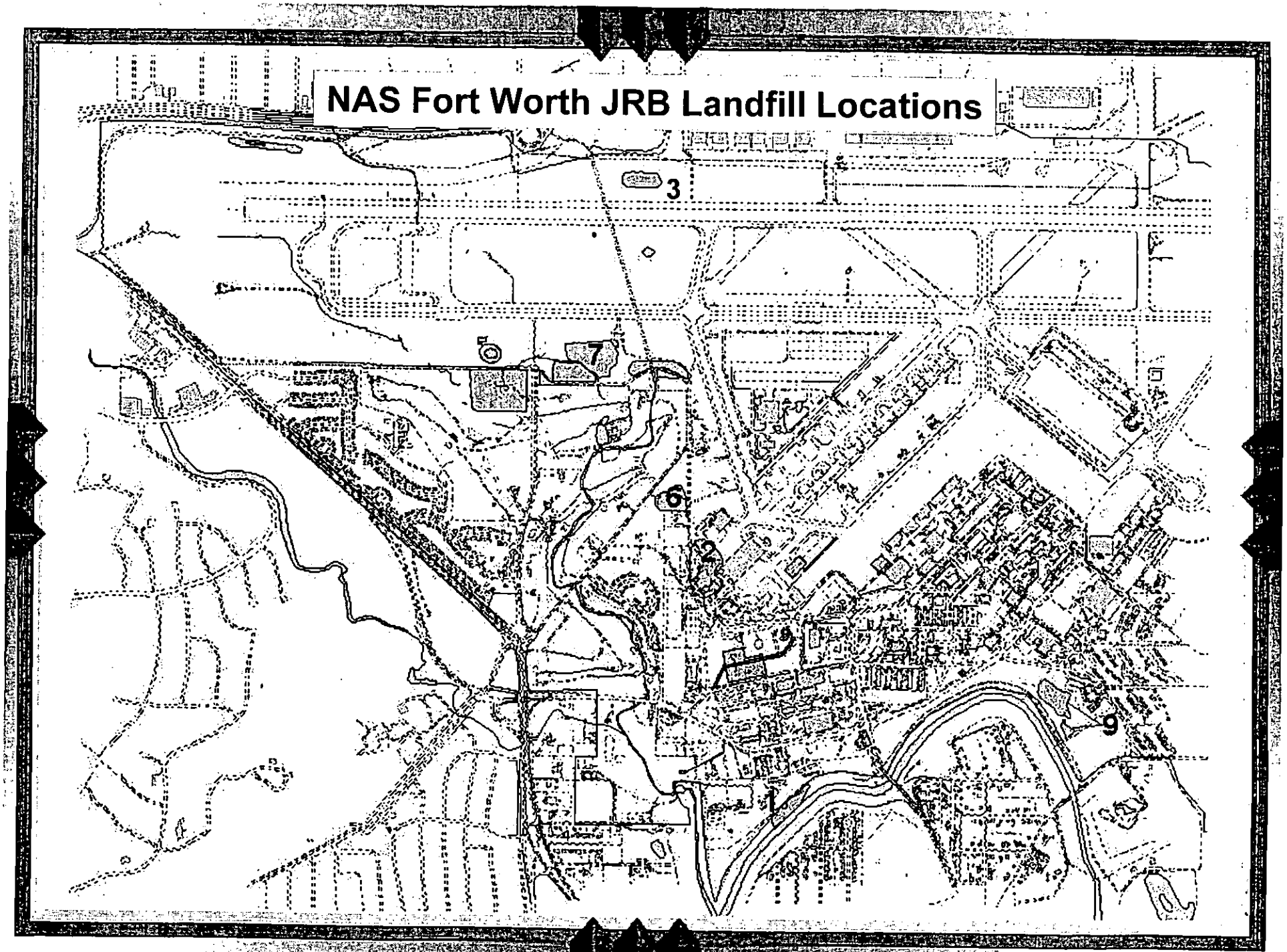
- Solid Waste Management Units (SWMUs)
  - Landfills
  - Waste Accumulation Areas for hazardous wastes
  - Oil/Water Separators
  - Storm Water Drainage Systems
- Underground Storage Tanks/Fueling Stations
- Fire Training Areas

HYDRO GeoLogic Inc.

RCRA Facility Investigation of Landfills

- Phase III field work began last month and is ongoing at Landfills 1, 2, 3, 6, 7, and 9.
  - Soil and groundwater sampling.
- RFI Report planned for submittal to AFCEE later this year, pending successful completion of delineation activities.
- Final RFI Report for Landfill 10 submitted to TRNCC in March 2000. TNRCC approved request for "No Further Action".

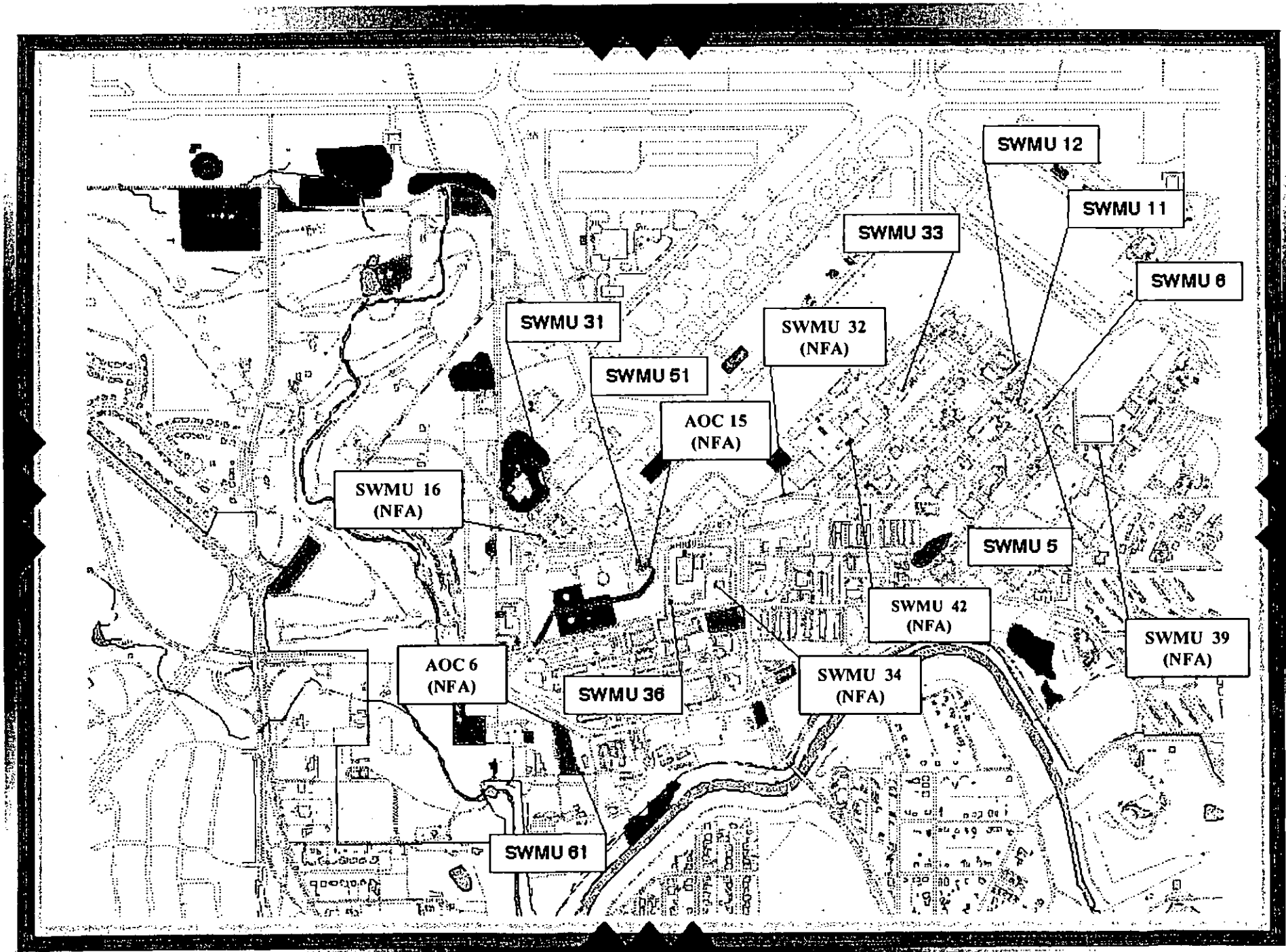
HYDRO GeoLogic INC.


NAS Fort Worth JRB Landfill Locations
3
5
7
6
2
9
9
1

Waste Accumulation Areas

- The Phase II RFI Work Plan approach was presented to TNRCC in March 2000.
  - Soil and groundwater sampling for 9 of the 16 WAAs.
- Field work began in April and is ongoing.
- An RFI report is currently being prepared for submittal to TNRCC this summer to present findings and to recommend no further action for 7 of the 16 WAAs.

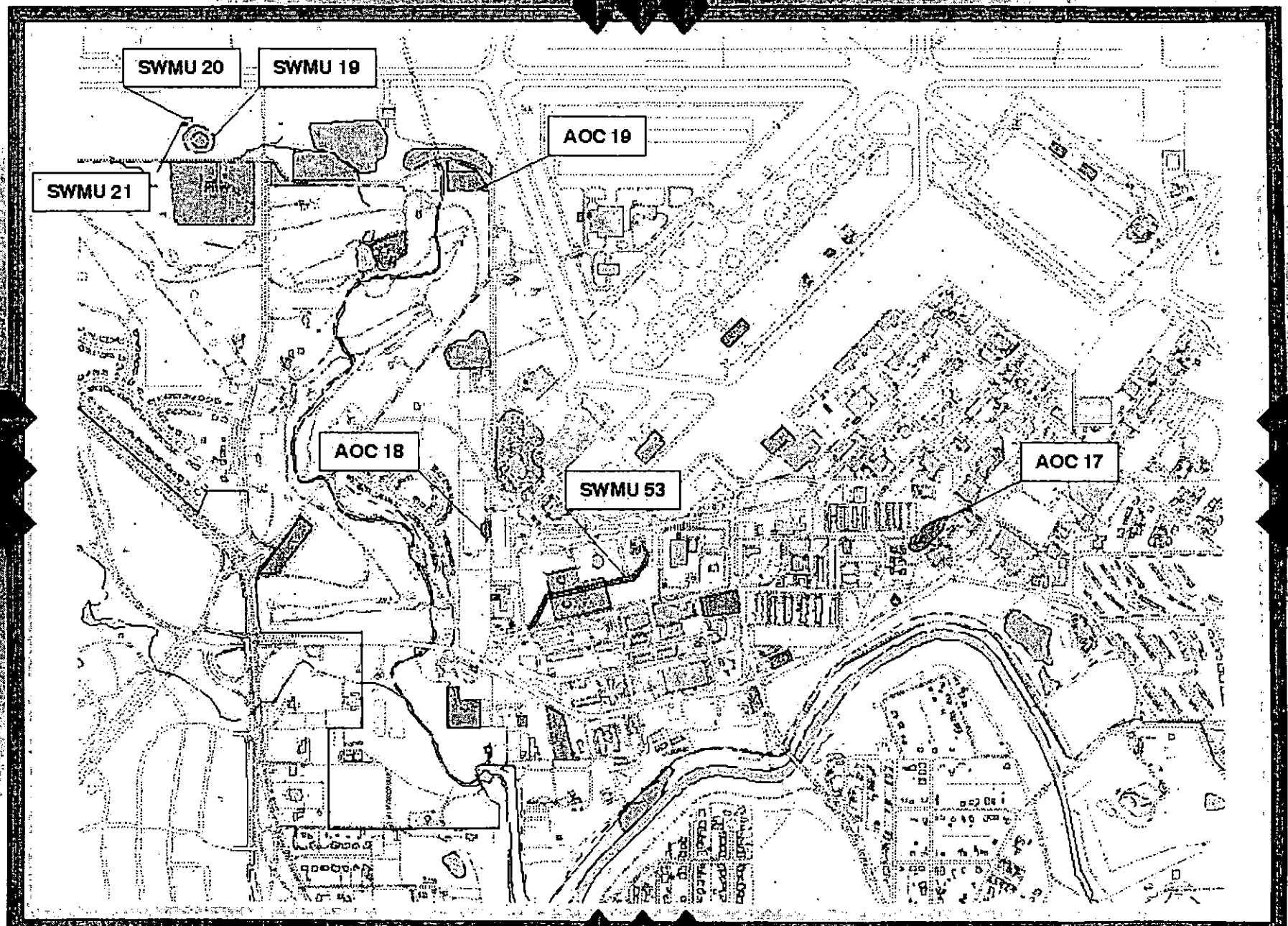
HYDRO GeoLogic INC.


SWMU 12
SWMU 11
SWMU 33
SWMU 6
SWMU 31
SWMU 32
(NFA)
SWMU 51
AOC 15
(NFA)
SWMU 16
(NFA)
SWMU 5
SWMU 42
(NFA)
SWMU 39
(NFA)
AOC 6
(NFA)
SWMU 36
SWMU 34
(NFA)
SWMU 61

SWMUs 19, 20, 21, and 53; AOCs 17, 18, and 19

- Field work began this month at these sites:
  - SWMUs 19, 20, and 21--Former Fire Training Area No. 2
  - SWMU 53--Storm water drainage system
  - AOC 17--Suspected former landfill
  - AOCs 18 and 19--Suspected former fire training areas
- Field work activities include:
  - Geophysical Survey
  - Soil Sampling
  - Possible Groundwater Sampling

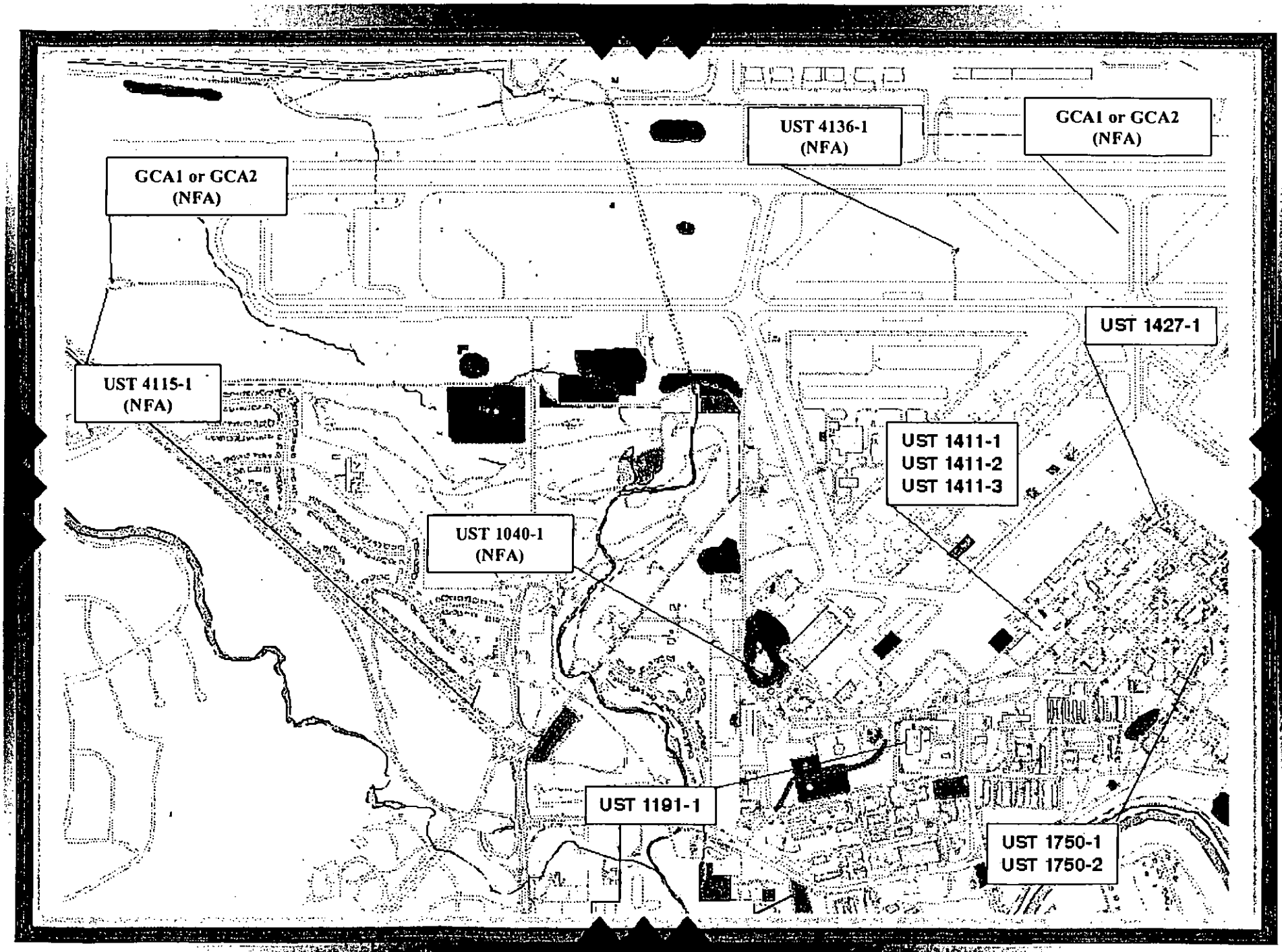
HYDRO GeoLogic INC.


SWMU 20
SWMU 19
AOC 19
SWMU 21
AOC 18
SWMU 53
AOC 17

UST Investigation

- Final Investigation Summaries for 5 USTs submitted to TNRCC for closure in March.
- Remaining 7 USTs require additional soil and/or groundwater sampling to be conducted this month.
- Final Work Plan for AOC 1 (Former Base Service/Gas Station) approved by TNRCC, monitoring well installation to start later this month.

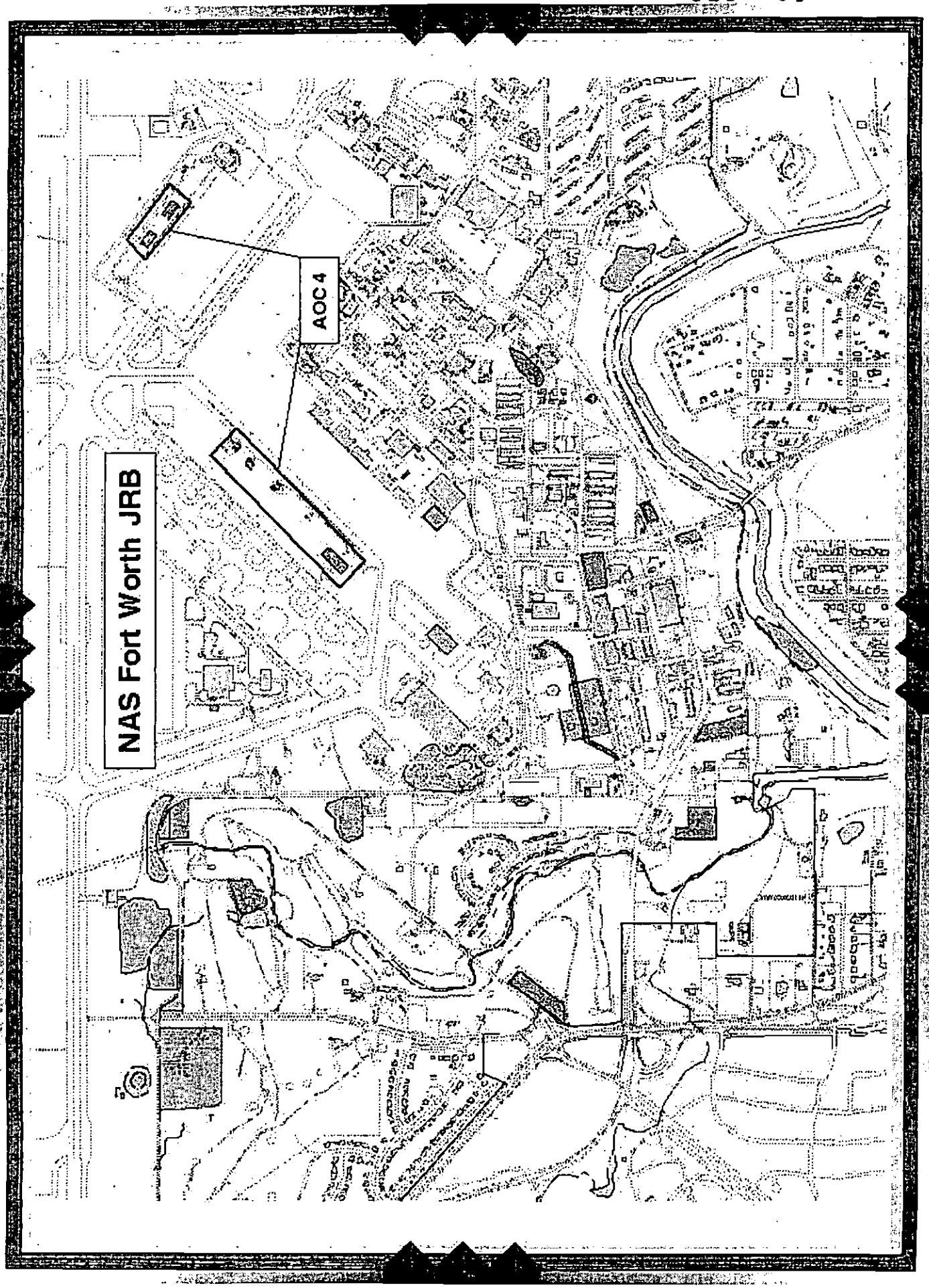
HYDRO GeoLogic INC.


UST 4136-1
(NFA)
GCA1 or GCA2
(NFA)
GCA1 or GCA2
(NFA)
UST 1427-1
UST 4115-1
(NFA)
UST 1411-1
UST 1411-2
UST 1411-3
UST 1040-1
(NFA)
UST 1191-1
UST 1750-1
UST 1750-2

AOC 4 Site Investigation

- Field investigation of AOC 4, the Fuel Hydrant System, completed January 1999.
- The Draft SI Report and Assessment Report Form was submitted to TNRCC in August 1999.
- Efforts in 1999 included weekly product removal and quarterly groundwater monitoring for 1 year.
- Efforts in 2000 include weekly product removal, as necessary, and semi-annual monitoring for 1 year.
- The Final Annual Groundwater Sampling Report for 1999 will be submitted to TNRCC this summer.

HYDRO GeoLogic Inc

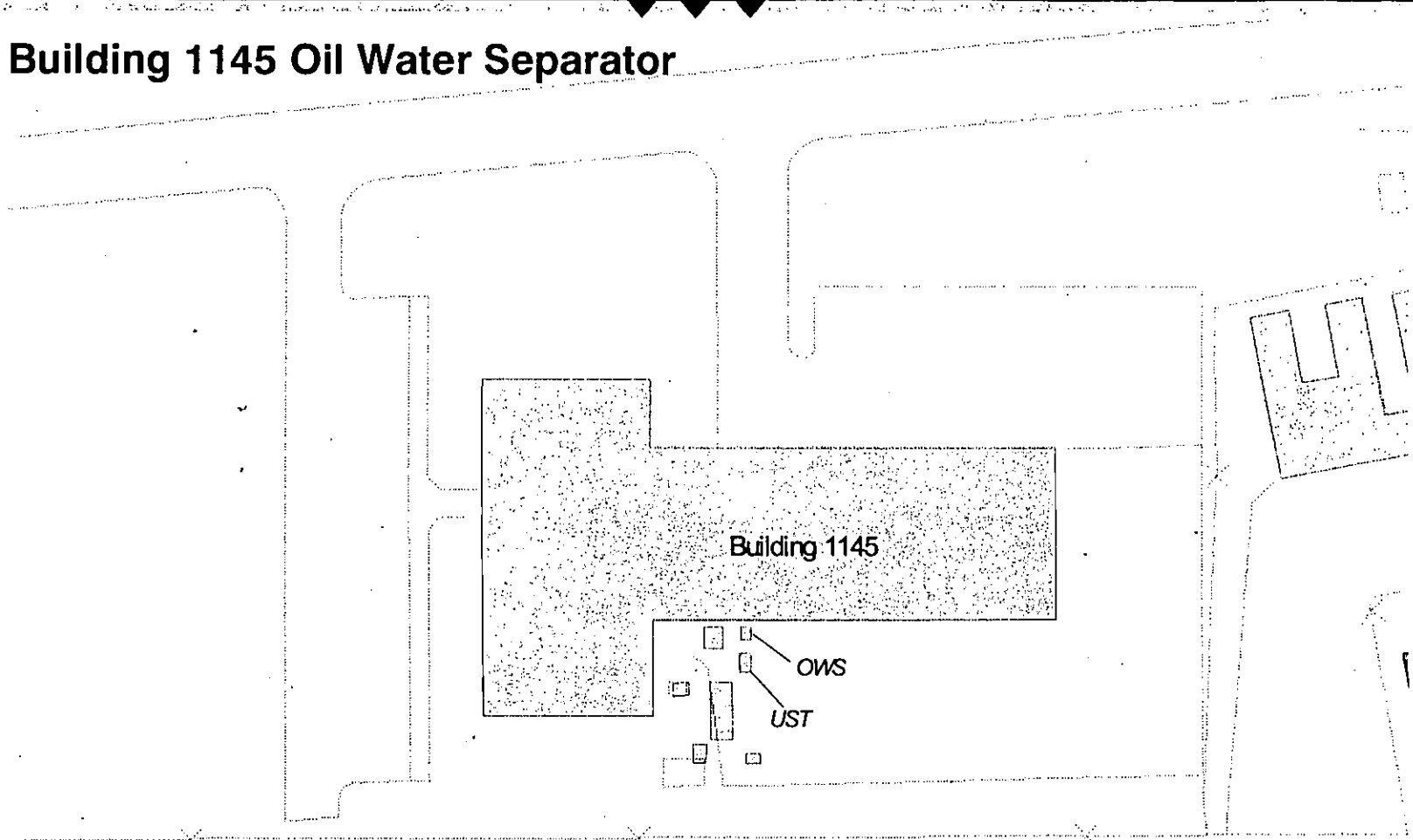

NAS Fort Worth JRB
AOC 4

Corrective Measures at AOC 13 (Building 1145)

- Site investigation completed in 1998 identified contamination beneath AOC 13 (Hobby Shop Oil Water Separator and associated Underground Storage Tank).
- Removal/construction activities to be conducted starting May 15, 2000.
- Report to be submitted to AFCEE this fall.

HYDRO GeoLogic INC.

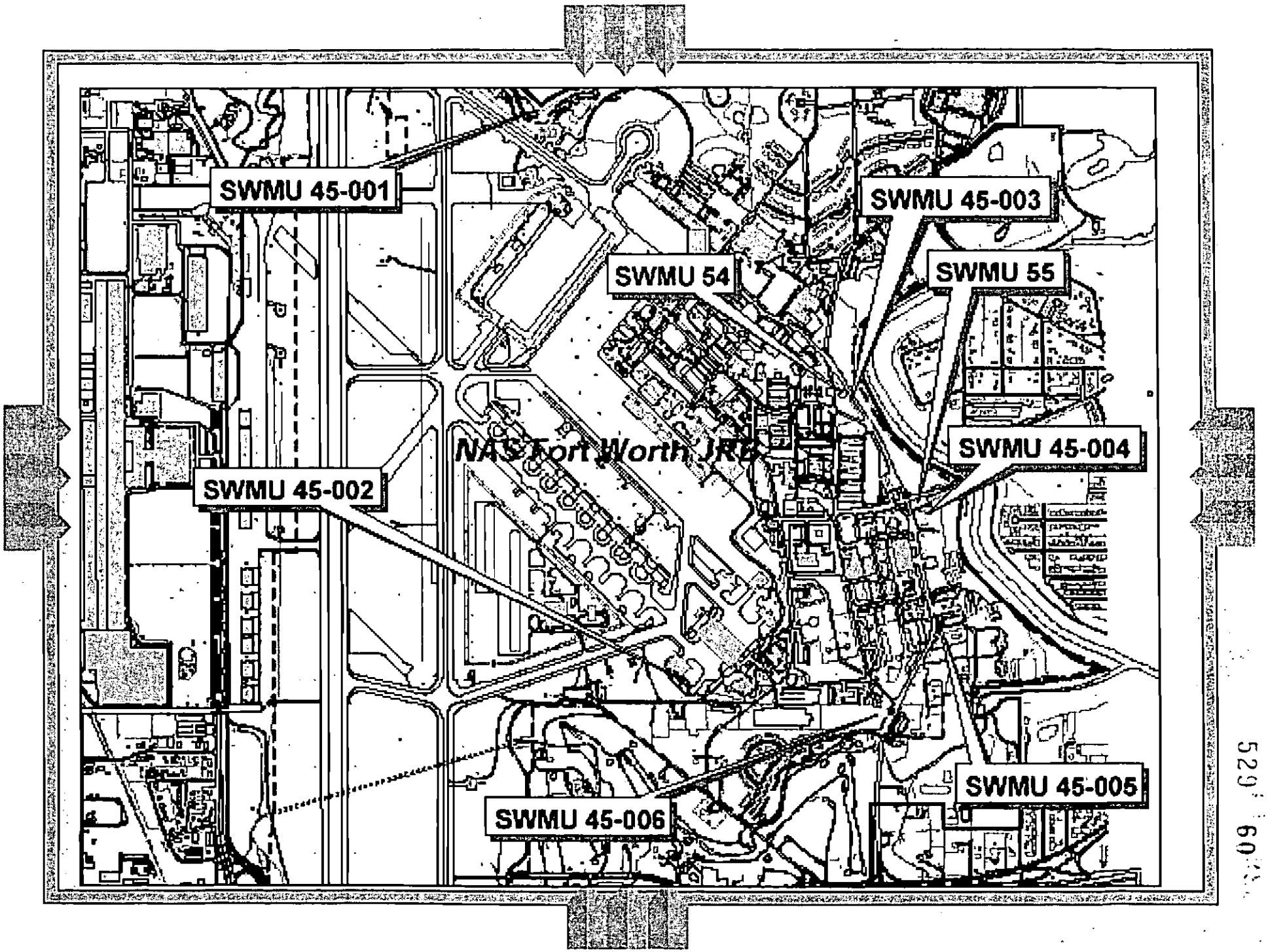
Building 1145 Oil Water Separator



SWMUs 45, 54, and 55

- In March, AFCEE awarded work to HydroGeoLogic for investigation of
  - SWMU 45--Waste Oil Tank Vault
  - SWMU 54--Storm Water Interceptors (5 total)
  - SWMU 55--East Gate Oil/Water Separator
- Work Plans are currently being prepared for SWMUs 45 and 55. If SWMU 55 is found to be contaminated, then SWMU 54 will be investigated.

HYDRO GeoLogic INC.


SWMU 45-001
SWMU 45-003
SWMU 54
SWMU 55
NAS Fort Worth JRB
SWMU 45-004
SWMU 45-002
SWMU 45-005
SWMU 45-006

Basewide Oil/Water Separators

- In April, IT Corporation began field work for sampling soil and groundwater at 11 Oil/Water Separators.
- Field work will continue into May.

HYDRO GeoLogic INC.

Groundwater Sampling and Analysis Program (GSAP)

- 2000 Groundwater Sampling and Analysis Plan finalized.
  - This plan outlines quarterly groundwater monitoring activities for NAS Fort Worth.
- 1999 Annual Report finalized.
  - The report presents plume characteristics and trends since the beginning of the GSAP.
- Quarterly groundwater sampling conducted last month: 34 wells sampled.
- Monitoring Well Abandonment/Repair Work Plan approved by TNRCC, work to begin later this month. 12 monitoring wells will be abandoned, and 5 will undergo repair.

HYDRO GeoLogic INC.

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE